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UNDERDRAINING AND SUBSOILING.

Plants take in their sustenance through their rootlets. It is true that the leaves exercise important functions in the economy of plant growth by inspiration and expiration, as in the case of individuals, and are in point of fact the lungs of the plant. The leaves therefore are as essential to the life of the plant as the roots, the one by inhaling nutriment from the atmosphere, the other by absorbing the soluble constituents of the soil. The leaves constitute the breathing apparatus of the plant, the rootlets the mouths, and the circulation of the fluids, synonymous with the blood in animals, goes on in the plant with the same regularity—except in the winter season, when in temperate latitudes, all the functions of the plant cease temporarily to recommence again with the opening of Spring. Concerning this part of a plant's life the farmer need trouble himself but little. Let it but get its head above ground and into the free air of heaven and the sun and dew and oxygen are there waiting for it. There is never any diminution of this supply. There is even room around it for unnumbered millions of its kindred plants to grow and flourish. The air and the soil in the natural growth of plants—that is to say, where the crop ripens and dies on the ground—are always giving and always receiving. Not a plant that decays but restores in its ashes, to the soil some portion of that which it had received from it, with the further addition of what the plant had drawn from the atmosphere.

It is different in the case of cultivated plants in their relation to the soil. The food it draws from the soil is carried off in the crop and the soil become by so much the poorer. If this process is carried on year after year the soil becomes exhausted of its fertilizing constituents and barrenness ensues. The deeper then that the roots of a plant have power to penetrate the soil and the greater freedom that is

given them to extend through the soil laterally at the increased depth, the more gradual will be the process of exhaustion in consequence of the larger store of plant food thus reached. Thorough tillage, deep ploughing and subsoiling are therefore the sheet-anchors of good farming. By thorough tillage the soil is kept open to the influence of air and water, and by deep ploughing and subsoiling, the soil retains a larger supply of moisture that becomes available in dry seasons, whilst the roots thus find a larger supply of plant food. Two things are therefore essential to be observed in good farming. First, when the land lies wet and cold it should be underdrained; next, it should be deeply ploughed and also subsoiled when the under soil is of such a character as to render it beneficial.

Every farmer must be his own judge of the necessity of underdraining. It will cost but little to try the experiment where the land lies low and water either accumulates on the surface or penetrates the hard soil but slowly. All such soils will yield three-fold returns by underdraining.

The advantages arising from judicious underdraining are thus set forth by an old and experienced writer on agriculture, and in the views which he expresses we so heartily concur that we reproduce them as a fitting close to this article.

1. Removing the water from the pores admits the air, which is essential to the growth of the roots.

2. The roots extend farther and deeper into the soil, get a firmer hold upon it, and draw nourishment from a larger area.

3. The air decomposes vegetable matter, and thus furnishes organic food for the growing plant.

4. The air and other gases decompose the earthy parts of the soil, and thus provide new inorganic food.

5. The free circulation of air in the soil carries in ammonia, and other fertilizing substances to the roots of plants.

6. The presence of water causes soils to bake, so as to render them hard to work, and also to prevent the free growth and expansion of roots.

7. When all excess of water is removed, compact and clay soils become light and pulverized by working them.

8. The free access of air renders poisonous compounds of iron, maganese, &c., *inert*, and clover and other deep rooted crops will not be killed, but they will continue to grow and flourish from year to year.

9. The depth to which the roots penetrate in soils, freed from poisons and filled with air, secures to the plants sufficient moisture to withstand the surface effects of drouth.

10. In hot weather, the circulation of warm, moist air through the open mouth drains and the soil, condenses moisture in the cooler soil, and furnishes additional security against drouth.

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11. The air circulating in the soil, decomposes acids and removes "sourness."

12. The removal of the standing water allows warmth, which cannot descend through a body of water, to penetrate farther into the soil.

13. By causing the water to descend into drains, instead of evaporating from the surface, another chief source of coldness is removed.

14. Rains in descending through the ground, carry the heat of the atmosphere with them, and thus warm the soil and roots of plants.

15. Draining, by rapidly removing the water in the spring, and after heavy rains, and by warming the soil, is equivalent to lengthening the season, and gives a wider range of cultivated plants, and a longer time for plowing and working the ground.

16. Land freed from excess of moisture, expands much less in freezing, and the roots of wheat, clover and other crops remaining in the ground over winter, are not destroyed by winter kill.

17. Water by sinking through the soil into drains is prevented from washing the surface into gullies, and from carrying away into streams the rich soluble portions of soils and manures.

These reasons we believe are sufficient to induce farmers to inquire into the condition of their soils, and to try the experiment of draining upon at least a small portion of their wettest lands. The experiment need not be on a large scale. A single acre well drained will suffice to show whether this means of improvement may be profitably extended.

CONTROL your horse; let him know that you are his master as well as his friend—he will then work for you with confidence.

For the Maryland Farmer.

SMALL FARMS BEST.

"Hang your pot upon your own hook" seems at this time to be the cardinal maxim of the American mind. Aristocracy, and partnerships and consolidations in arts, trades, commerce, and *agriculture* are being swept away before the march of democratic ideas. Partnerships have been tried and found wanting; and again the old-fashioned notion is beginning to prevail that "Every tub upon its own bottom must stand." This is eminently the case in agriculture. Big firms, big ships, big trades, and big nations may all be well enough in their place; but big *farms* are utterly impracticable. Since all men have been made "free and equal," it is a disgrace to be servants and underlings. Hence the owners of big farms who are rash enough to dare assert their rights soon learn to sing

"We are monarchs of all we survey.

Our rights there's none to dispute:

All around from the land to the sea,

We are lords of the fowl and the brute,"—

But narry a servant hath we!

Yes, big farms are "going, going, gone," knocked down to the *lowest* bidder; cut up into small plots, and sold off like hot cakes, to *live* men whose maxim is,

"A little farm well tilled,
A little house well filled,
A little wife well willed."

Thus the world moves on; and those who "dance their own jig" upon their own broad acres begin to sing "Ten acres enough," "Five acres too much," "Our farm of four acres," and, would you believe it? some cry out "Two acres Enough!" and I think I hear something like "One Acre Enough." Well, by and by some one will say that "half an acre is enough," or a "quarter acre is enough," till at last we shall find that *it is not worth while to have any land at all!* People will go to extremes. Few have the good sense to hold fast "the golden mean." My advice is that among the big farms, and little farms, and *no farms at all*, you take the little farms—those of ten, twenty, thirty or forty acres. Those hundred acre farms are too much for one set of muscles to cultivate properly, and the half acre farms are most too small for the expansive genius of an active brain, too confined, rather, for good breathing room. My motto is "Small farms, and *thorough* culture; diversified crops, securing "home products and home pleasures;" time for recreation and social enjoyments; a union of interests: and—a fig for aristocracy and lordly estates.

B. W. J.

IT IS SAID that if all that the dogs of this country eat was fed to hogs, it would make \$50,000,000 worth of pork. Add to this the value of sheep they destroy, and something of an idea of the *curse* of dogs can be obtained.

KENTUCKY BLUE GRASS vs. ORCHARD GRASS.

A correspondent writing from Woodstock, Va., enquires whether he can grow Kentucky Blue Grass in that climate. He adds, that Orchard Grass grows well in his neighbourhood, but the impression prevails there that it affords but little nutriment, and he and his friends feel the want of something better than clover and orchard grass for pasturage.

We answer, first of all, that if the soils about Woodstock have not been exhausted of their lime and potash, and if the subsoil is a good sound clay, Kentucky blue grass will grow well there, and will make excellent pasturage.

At the same time we desire to correct a prevailing error in respect to orchard grass. Our correspondent seems to be of the opinion that it affords but little nutriment. This is certainly a mistake, although a natural one where it grows harsh and woody. The remedy lies in heavier seeding. Analysis shows that orchard grass is only second to timothy in point of nutriment, whilst for general purposes and for an early grazing crop there are few, if any grasses, that excel it. When seeded by itself so thickly that it will not bunch, but make a close even sod, it will prove tender and succulent, and very acceptable to all kinds of stock. Orchard grass moreover will stand a drouth better than any other of the cultivated grasses. It thrives well in woods—just as Blue Grass does—where they have been cleared of undergrowth, but best of all on open lands having a clay subsoil. It will also grow on lighter soils, but where there is a large admixture of sand it fails to perfect its seed, unless the season is a remarkably wet one. Where sheep are kept it is peculiarly valuable as affording early pasturage, and by close grazing its tendency to run to coarse stalks is remedied. It is eaten by sheep with more relish than most grasses, and for dairy farming where many cows are kept, furnishes a steadier supply of food than any other grass. As compared with timothy, the following analyses will show wherein the difference in nutritive value lies. The analyses were made from the dry hay, harvested for winter feeding, and the excess of woody fibre in the orchard grass is therefore more distinctly made.—In the fresh grasses and in the spring season this difference for the most part would have disappeared.

Orchard Grass. Orchard Timothy.
Grass seeds, ripe.

Albuminous or Flesh forming principles,	13.53	23.05	11.36
Fatty Matter,	3.14	1.56	3.55
Heat producing principles, starch, gum, &c.	44.22	26.53	53.35
Woody fibre,	33.70	43.22	26.46
Mineral matters, or ash,	5.31	5.51	5.23

It will be seen by the above that orchard grass competes very fairly with timothy, which is univer-

sally acknowledged to be the most nutritious of all the grasses, but that the orchard grass has a large excess of woody fibre.

Further analyses made of the leaves of the two grasses, after they had fairly started in the spring, show the following proportions of nutritive matter in 1920 grains of the ash :

Orchard Grass..... 80 grains.

Timothy Grass..... 80 grains.

It must be borne in mind also, that whilst timothy is a very exhausting crop, orchard grass, whilst it affords a much cheaper hay, and will grow well on a greater variety of soils, is far less exhaustive than timothy.

We now come to the question of *Blue Grass*. It is unquestionably in the climate of Kentucky, and on all rich calcareous soils, one of the most valuable of all pasture grasses. In that part of Virginia in which our correspondent lives, and, indeed, all through the Valley of Virginia, it will grow admirably, except where the soil is deficient in lime and potash. Farther south it will also grow on rich land tolerably moist, but its ordinary growth is low, and it has a tendency to become hide bound. In dry, hot summers south of Middle and Western Virginia it fails to provide pasturage. Even in Kentucky, in consequence of its short growth, it is not to be depended on for hay, but as a pasture grass it is unrivalled. In Virginia, and in combination with orchard grass, it would undoubtedly be found of great value, and it is in this manner that we should seed it. The great merits of orchard grass are its vigorous growth, and the quickness with which it starts afresh after cutting. Its chief defects are its tendency to grow in clumps or bunches, and the excess of woody fibre in the strong, coarse stems. The remedy for both these defects is heavy seeding, which gives an even sod and a finer grass. We should suggest, therefore, that instead of sowing blue grass seed alone, it should be mixed with orchard grass, at the rate of one bushel of each, to which may be added a half a gallon of red clover seed. Blue grass is tender when it first starts, and the orchard grass and clover afford protection to it until it gets a foothold. When once it is fairly rooted, no other grass can contend with it. There is, moreover, another advantage in this admixture of grasses. It secures at once a well covered pasture, which will bear considerable grazing, even before the close of the first year. In the course of a few years the blue grass will expel the other grasses and take possession of the field. On open ground the seeding may be done in March upon wheat, rye or oats; but it ought never to be delayed later than the first week in April, for if dry weather sets in much of the seed will then be lost.

Feed a pig and you'll have a hog.

CULTURE AND HISTORY OF LUCERNE.

Much as has already been said, and well said, concerning the valuable properties of Lucerne as a forage plant, it has not yet come into cultivation with us except in rare instances. The value of Lucerne is yet to be appreciated with us. Yet nothing can be more completely established than the fact that it is well adapted to our climate; that it grows with great luxuriance when once it has become established in the soil, and that if the tillage has been of the best, as it necessarily must be for the production of this crop, and if the soil be fertile—for on poor lands it could not succeed—if, we say, these conditions are observed, it will yield several cuttings annually and will not require re-seeding for many years. In our hot and dry summers the Lucerne is especially valuable, as it resists a drought that would parch up every other species of herbage, and is withal so nutritious that every species of cattle will eat it in preference to almost any other of the coarser grasses. With the hope that this plant will have that fair trial that has not yet been given to it, and so be brought into general cultivation, we proceed to give such particulars as to soil and culture as may prove interesting.

As to Soil.—Lucerne delights in a deep, dry, sandy loam. In clay soils, and especially in such as are wet, it will not flourish. In soils adapted to its growth, it sends down to a great depth its long tap roots, and draws thence the moisture and nourishment it requires. Being a tender plant in the first stages of its growth, and even when well established being liable to be injured by the severity of our winters, Lucerne requires the same shelter which is given to the grape. A southern exposure well defended from the north-west wind suits it best.

Preparation for Seeding.—Lucerne requires thorough tillage. The land must not only be ploughed deeply, but would be essentially benefited by subsoiling. It must also be free from weeds or briars, and pulverized as completely as possible. If this is done, and the soil is either naturally fertile or is made rich by a copious manuring, the plant will flourish for ten or a dozen years without further trouble than keeping it free of weeds in the spring.

Mode of Culture.—The best mode of growing Lucerne is in drills, though it is frequently sowed broadcast; still the drill system is so far preferable that it deserves to be generally adopted in the culture of this plant. Let, then, the Lucerne be seeded in drills about a foot apart. After the plants come up they should be carefully weeded, and the intervals should be hoed occasionally throughout the first season. If vacancies occur in the rows, thin out where the plants stand too thickly and trans-

plant with these the vacant spaces early the following spring. No further trouble is necessary than to run a light harrow over the ground in April of each successive year, and if the plants show any signs of failing, to top-dress with well-rotted manure. Lucerne, like clover, is greatly improved and invigorated by plaster, and it would be advisable to scatter over the field as soon as the leaves of the plant become well developed, and upon a moist day, about a bushel of plaster to the acre.

Time of Cutting.—Just when the plant is about to form. On rich land it will yield four cuttings each season.

Quantity of Seed to the Acre.—If drilled, fifteen pounds, but when broadcasted not less than twenty pounds.

From a valuable work by C. L. Flint, on "Grass and Forage Plants," we extract the following interesting account of Lucerne:

LUCERNE ALFALFA (*mehicago sativa*.) This genus of leguminous plants has been known and cultivated from time immemorial. This particular species, Lucerne, was brought from Media to Greece in the time of Darius, about five hundred years before Christ, and its cultivation afterwards extended among the Romans, and through them to the South of France, where it has ever since continued to be a favorite forage plant. It does not endure a climate as severe as red clover, requiring greater heat and sunlight; but in a latitude equally suited to both plants, it would be somewhat difficult to say which should have the preference. In some respects it is decidedly superior, as in being perennial, and consequently remaining long in the soil. I have seen five specimens of it in South Boston, where the seed was sown in 1824, still maintaining its vigorous hold of the soil and growing with remarkable luxuriance. The grass of Lucerne is as abundant as red clover, and is equally well relished by cattle, both green and dry. Its yields of green fodder continues later in the season than that of red clover.

Lucerne sends down its tap roots in mellow soils to enormous depths, having been found in sandy soils thirteen feet in length. The leaflets are in threes obovate, oblong toothed, the flowers pale blue, violet, or purple, the fruit in dromy pods, having two or three twirls.

Lucerne is cultivated in Chili, and grows wild in the utmost luxuriance in the pampas of Buenos Ayers, where it is called Alfalfa, which is simply the common Lucerne, slightly modified by climate, and may be regarded as a variety.

The cultivation of Lucerne is somewhat more difficult than that of clover for the first year, requiring a soil thoroughly mellowed and prepared by clean and careful tillage; and the want of proper attention to this point has led to partial failures in the

attempts to raise it in this country. It suffers and languishes in compact clay soils, and does not flourish in light soils lying over an impermeable subsoil, which prevents the water from running off. It will never succeed well on thin soils. But in a permeable subsoil, consisting of loam or sand or gravel, its roots can penetrate to great depths, and being nearly destitute of lateral shoots, provided with numerous fibrous rootlets, or radical off shoots, imbibe their moisture and nutriment in layers of soil far below the average of other plants. In this respect, it differs materially from clover. For Lucerne, a suitable subsoil is of the utmost consequence. For the short-lived red clover, a suitable surface soil is more important; a want of care and deep tillage, especially a neglect to break through and loosen up the hard-pan wherever it exists, will inevitably lead to failure with Lucerne. But when the soil is suitable, it will produce good and very profitable crops for from five to ten or twelve years, and of course, it does not belong in the system of short rotations.

But notwithstanding the large quantity of succulent and nutritious forage it produces, its effect is to ameliorate and improve the soil rather than to exhaust it. This apparent anomaly is explained by the fact that all leguminous, broad-leaved plants, derive a large proportion of their nutritive materials from the atmosphere, and that a vast quantity of roots are left to decay in the soil when it is at last broken up, varying, of course, with the length of time the plant continues in the soil, while the luxuriant foliage serves to shade the soil and thus to increase its fertility.

Much of this rich foliage is scattered and left to decay, as is the case with all similar plants at the time of harvesting, and the growth of the aftermath is also usually very considerable. The fact that it actually increases the fertility of the soil for other plants has often been proved, and may be regarded as fully established.

A soil which would bear only a medium crop of wheat at first, produced a greatly increased quantity after being laid down to Lucerne a few years till its roots had enriched the soil.

Lucerne should not follow immediately after having been grown a few years on the same soil, and then broken up, but after the land on which it has been cultivated with some other crop, or laid down to the natural grasses a length of time equal to that during which it had previously remained in lucerne, it can safely be sown again with it.

The seed of lucerne, when fresh and good, is yellow, glossy and heavy. If the seeds are white, it is an indication that they are not ripe. If they are brown, we may infer that they have been subjected to too strong a heat to separate them from their

husks. In either of these cases, it is not safe to purchase or rely upon them. The same may be said of clover, and it is desirable to try them by a simple method which will be indicated hereafter in speaking of the selection of seed. As the seeds of lucerne are somewhat larger than clover seed and the plant tillers less, it is necessary to grow a larger quantity per acre. It may be sown in the spring along with grain crops, as clover often is, and not a very large crop should be expected the first year.

Lucerne should be cut as soon as it begins to flower, or even earlier. If cut much earlier, it is apt to be too watery and less nutritious, and cures with greater difficulty; if later, it becomes coarse and hard with woody fibre, and is less relished by cattle. It may be cut and fed green, and is an exceedingly valuable plant for soiling cattle, or it may be cut and cured and used like clover hay; but in either case, it must be cut before blossoming.

It is thought by many, that lucerne will not endure the climate of New England, but I do not think it satisfactorily proved, and I have been somewhat minute in speaking of it, in the hope of inducing more careful experiments on a scale and under circumstances sufficient to determine its relative value for us. I am the more anxious on this point from the fact that I am convinced, after much study and observation of our climate, that we should direct our labors in farming more with reference to the frequent droughts of summer, to which we are liable every year, and from which there is no immediate and practicable escape except in thorough and deep tillage, which most farmers are unwilling to undertake at present. When properly managed, the number of cattle which can be kept in good condition on an acre of lucerne, during the whole season, exceeds belief. It is no sooner mown than it pushes out fresh shoots, and wonderful as the growth of clover sometimes is, in a field that has been lately mown, that of lucerne is far more rapid. Lucerne will last for many years, shooting its roots—tough and fibrous almost as those of liquorice—downwards for nourishment, till they are altogether out of the reach of the drought. In the driest and most sultry weather, when every blade of grass droops for want of moisture, lucerne holds up its stem, fresh and green, as in the genial spring.

I am convinced, also, that the failures of attempts to cultivate lucerne with us may be ascribed, in nearly every instance, to our improper selection of soils, and am inclined to think that a more accurate knowledge of the plant, and a more careful observation of its habits of growth, would lead to its more general adoption as an economical forage plant.

I have procured fine specimens of lucerne in various parts of this State, where it is very successfully cultivated, but on too limited a scale to determine its comparative value as a farm crop.

Our Agricultural Calendar.

FARM WORK FOR MARCH.

With March comes the season of hard work. Sometimes, however, the spring opens late, and the work of the season is delayed. Such has been the case for several years past. We have had cold, wet, and unpropitious spring weather, and the oat seeding has been delayed in many instances almost up to the time that corn planting ought to begin. But with a dry, windy March, with occasional soft airs, such as prelude the coming of spring, work on the farm is greatly expedited. It is true in this day as it was of old, apart from the manifest exaggeration of the phrase, that "a peck of March dust is worth a King's ransom." It shows at least the value set by old farmers on dry March weather, and to us, where the progress from the more tepid airs of the later spring to the full blaze of summer is so rapid, open and good weather in March is of incalculable benefit. Spring work always taxes the best energies of the farmer, even in the orderly progress of the seasons. But if the true spring weather is so delayed that it treads closely on the advent of summer, the prospects of thorough preparation and of good crops are alike doubtful. Nevertheless, and assuming that the weather will be propitious, we give, as usual, the following suggestions as to the work for the month.

OATS.—Soil and Preparation.

The best soil for oats is an old pasture of clay loam, rich, moist, and dry, and which has been broken up in the fall for the purpose of reseeded to grass. It generally abounds in all those constituents in which the oat delights. What those are will be seen by the following analysis :

	Grain of Oats.	Straw.
Potash.....	12.09	24.05
Soda.....	0.00	4.04
Lime.....	3.07	8.03
Magnesia.....	7.07	2.08
Phosphoric Acid.....	14.09	3.00
Sulphuric Acid.....	00.00	4.00
Silica.....	53.03	40.00
Chlorine.....	0.05	4.07
Iron Carbonic Acid and Loss.....	6.00	8.03
	100.00	100.00

The fifty per cent. of silica in the straw and grain respectively, shows why it is that oats flourish luxuriantly on meadow land that has been broken up from grass. It also indicates that potash, for the reduction of the silicates, is absolutely essential as a constituent of the soil. Wood ashes, therefore, are very serviceable in the growth of the crop, as well as in the production of the finer grasses. It must be remembered, too, that this crop occupies the ground but four months, and therefore that what-

ever food it requires, must necessarily be present in the most soluble form. Deep ploughing and thorough tillage are therefore indispensable, as tending to increase the solubility of the plant food, and as enabling the roots to ramble freely in search of it.

Composts for Oats.—Where there is a deficiency in the organic and inorganic constituents of the soil either of the following mixtures applied the specified proportions to each acre will be found of great advantage.

No. 1. 5 two horse loads of stable manure, 10 do. of woods earth, or marsh muck, 10 bushels of wood ashes, 1 bushel of crushed bones, 1 bushel of plaster. Compost, ferment, and mix.

No. 2. 5 bushels of bone dust, 10 bushels of wood ashes, 2 bushels of salt, 1 bushel of plaster.

No. 3. 250 lbs. of super-phosphate, 10 bushels of ashes, 2 bushels of salt. Mix, and plough under.

Time of Sowing.—The best time to seed oats is as soon as the soil is in condition, after the frost has left the ground.

Quantity of Seed to the Acre.—Sow from 2 to 3 bushels to the acre, according to the quality of the soil.

Sowing Clover Seed.

Clover seed may be sown to advantage on the snow late in February, or on oats after seeding. On winter grain sow as early as possible, and harrow lightly and roll.

Quantity of Seed to the Acre.—One peck of clover seed is the customary quantity, though some use less. It is of decided advantage to sow clover seed, and then follow with an additional seeding of orchard grass on the same land. In this case sow 12 pounds of clover seed, and not less than 1 bushel of orchard grass seed.

Plastering Clover Seed.

As soon as the clover is in leaf as large as a dime, sow plaster of dewy mornings, at the rate of a bushel to the acre.

Preparation for Corn.

It is rather early to prepare for corn, but as soon as the oats are in, it were well to get to work and haul out manure to the field intended for corn. The sooner this is done the better, but if ploughing is delayed, the manure had better be dumped in large heaps, and covered with soil to keep it fresh. It should then be scattered before the plough, and rapidly covered in.

As to Soil.—The best soil for corn is a rich, sandy loam, deep, and tolerably level. Alluvial soils are exceptionally good where they can be laid dry. A good preparation for corn is a loamy meadow, broken up deeply in the fall, and the sod left to rot during the winter. Such a soil, manured and cross-ploughed in the spring, will in good seasons produce a large crop of corn,

Barley.

Barley does not appear to thrive in this latitude, and is rarely cultivated. To those who would like to try it, we say that it prefers a light, rich soil, and that not less than two bushels of seed should be broadcasted to the acre.

Milch Cows.

Heifers, working animals, and sheep, should all receive extra attention, as advised last month.

Early Potatoes.

To produce a large yield, even on the best soils in the Middle States, it is necessary that potatoes should be planted early. The risk to be run is that of second growth. Late planted potatoes cannot usually be grown to a profit with us, the crop falling far short of what is obtained to the acre, to the north of us. But whether planted early or late, the process is the same. The soil should be either rich naturally in potash, or should be made so by the addition of wood ashes, with the further assistance of farm-yard manure. It should be ploughed deep—the furrows laid off two feet and a half apart, and the manure deposited in the furrows. In choosing seed, potatoes of not less than two ounces in weight should be preferred, and even larger potatoes may be used to advantage. Dress the sets when cut, either with plaster or wood ashes, and plant at once—the practice of spreading out on a barn floor to dry, being a bad one. After planting, cover the hills with two bouts of the plough, and when the plants make their appearance dust them with wood ashes and lime, in the proportion of four parts of ashes to one of lime. Earth up well, and see that the intervals between the ridges are kept clean with the shovel plough and cultivator.

Fences.

Examine these, and if defective, place them in thorough repair.

Orchards.

The fruit trees ought to have been trimmed last month. It is not, however, too late, provided the work is done at once. Dress the wounds in branches either with a mixture of cow manure and lime, or cover it with a varnish. Manure round the trees, and fork the manure in.

Plastering Orchards and Shrubbery.

If this work has not yet been done, it should be commenced at once, and pushed forward rapidly.

PRESERVING EGGS.—The *French Journal de Pharmacie* contains an account of various experiments made in France on the best method of preserving eggs—a subject of much importance there. Among the different processes, the best, and at the same time one of the simplest, was found to consist in rubbing some vegetable oil (linseed especially) on the egg, this preventing any alteration for a sufficient time, and proving to be much more satisfactory than any other plan hitherto recommended.

CLOVER AND GRASS LAND.

If more of our farm land were kept in clover and grass than is usually the case, and a greater quantity of stock than is usually the case, we should not only bear less frequently of the exhaustion of the soil but should feel tolerably certain that with ordinarily good farming it was in a fair way of yielding large crops of cereals annually on a smaller extent of land. It is the manure that is made upon a farm that constitutes the primary source of profit to the farmer. It is the rapid exhaustion of farms and plantations by hoed crops, corn, tobacco, &c.—not only in consequence of the immense amount of phosphates which they extract from the soil but also by reason of the exposure of the soil itself in its light condition to washing rains and too ardent summer heat—which has thrown out of cultivation in this and other of the older States so many fields that were once fertile, but are now filled with sedge grass and rugged and unsightly gullies and ravines. Soils in our climate need to be kept covered in clover and grass to as great an extent as is consistent with good husbandry. They improve under the shade of clover, because this dense covering prevents evaporation, and because also the long tap roots of this fine forage plant penetrate deep down into the subsoil where they rot and furnish aliment for succeeding crops. A good crop of clover turned in is equivalent moreover to a good dressing of barn-yard manure, for it contains all the constituents in which the cereals delight. Grass lands for similar reasons when not too closely cropped improve the soil, inasmuch as they not only prevent evaporation and add vegetable matter to the soil by the decay of their under leaves, but they also leave many tons of vegetable matter to the under soil by their close network of fine fibrous roots when the land is again brought under the plough. In renting out farms in England so well is this understood that stipulations are entered into between the landlord and his tenants with regard to the number of acres that shall be kept constantly in grass and the quantity of stock of various kinds that shall be maintained on the farm. Nor is this stock in itself unprofitable apart from the additional amount of manure which is thus furnished. The dairy and the fattening annually a greater or less number of head of beef cattle, is more remunerative provided the market be not too far distant, than hay, sold off the farm, whilst the increased yield of the cereals—wheat, oats, barley and rye—amply compensate for the smaller amount of land that is brought under the plough. By pursuing this system lands which were originally only of ordinary fertility have been made to produce remarkably heavy crops, and what we call “exhausting the soil,” is a term which with them is only known theoretically.

Garden Work for March.

The work in the garden during the month is as follows:

Sowing Seeds.—Choose a good warm south border, well protected on the north and west, and there prepare a bed for such plants as are to be put out early. Manure the bed heavily with well rotted manure of the richest quality, spade it in deeply, and rake all fine. Now draw as many drills as may be required, half an inch deep and six inches apart. When this has been done, commence to sprinkle along the hills cabbage seeds of different sorts, and also tomato, lettuce, and radish seed. Many persons, however, lay off the bed with broad divisions, and sow the various seeds broadcast. There is really very little difference in the two methods, but we prefer the drill. When the plants come up water them of an evening, in dry weather, with a decoction made by putting a bushel of stable manure into a barrel, filling the latter with water, and letting it stand in the sun to temper it.

Early Peas.—As soon as the frost is out of the ground, prepare a bed for early peas. Choose a warm exposure at this season, although as the season advances, the coolest spot in the garden must be selected for the later supplies of peas. Make the drills, as many as are needed for an early supply, four feet apart,—sow the peas thickly along the drills, cover them well with earth, and press the soil to them with the back of the spade. When the peas are a few inches high, give them more earth, and proceed to stick them.

Plants in frames.—Give these plenty of air in moderate weather, and water them of evenings with tepid water.

Bunch Beans.—Plant a few rows of bunch beans.

Early Spinach.—Make the soil very rich, and drill in a few rows of spinach—make the drills twelve inches apart, and in point of depth, about an inch.

Carrots, Parsnips, and Beets.—Choose for early crops of these roots, a warm and well protected part of the garden. The soil should be rich and not freshly manured, so far at least, as the carrots and parsnips are concerned, or they will be apt to grow forked and fibrous. The beets will be benefited by a dressing of salt, and like a compacter soil than the carrot and parsnip. The rows for carrots and parsnips may be made from twelve to fifteen inches apart, and for beets, from eighteen to twenty-four inches, although many gardeners plant these roots much closer. Cover the seed with a rake and press the earth about them with the back of a spade.

Small Salading.—Sow small salading at intervals of a week a part during the month.

Celery.—Prepare a warm border—moist—for the reception of celery seed, with a view to the subsequent transplanting of the plants.

Siberian Kale.—Make a small bed very rich with manure, spade it well and sow a limited quantity of the seed of Siberian kale.

Asparagus.—Clean off the asparagus bed, fork in some well rotted manure, taking care not to injure the asparagus roots. Sprinkle the bed with salt liberally and rake all off. New beds of asparagus may be set out during this month or seed may be sown.

Sowing Onion Seed.—Drill in onion seed early this month.

Red Peppers.—Sow a small quantity of the seed of red pepper in a warm border to produce plants for early use.

Early Potatoes.—Set these in as soon as possible. For suggestions in respect to cultivation, see Farm Work in this number.

Rhubarb or Pie Plant.—These plants may yet be set out, or new beds formed for raising plants from the seed.

Gooseberries and Currants.—New plantations of these may now be made or cuttings set out. Dig round the old bushes carefully and see that they are also well pruned and well manured.

Raspberries.—Prune these, tie them to stakes, and fork in some well rotted manure about their roots.

Strawberries.—Clean off all weeds and refuse stuff from the strawberry beds—thin out the plants—fork in a small quantity of well rotted stable manure mixed with a large quantity of wood earth—or use the latter only—spread either tan bark or straw between the rows and finish by sprinkling the bed with wood ashes. Water freely during the dry season and even during the period of blossoming, but taking the precaution not to water until after sunset.

LIMA BEANS.—A correspondent of the *Country Gentleman* says that the principal point in the successful culture of the Lima Bean, is to get the seed well started. The best way of doing this is, to plant in a bill of light earth, made so by sifting the soil, if it can be had in no other way. A shovel full of well rotted manure should go into each hill. He mixes sand and muck, and after placing each seed with the germ downward in the hill, he sifts the covering over it through a willow sieve. Corn planting time is about the right time to plant Lima Beans. The after cultivation is the same as for the common pole bean.

Beware of enemies reconciled and meat twice boiled.

NOTES AND COMMENTARIES.

BY PATUXENT PLANTER.

IMMIGRATION.

This is the subject which now fully engrosses the public mind, or that portion of the public which is found in the thinly settled rural sections of the State. It would be well if some prominent members of the State Association, and County Association, could consult and fix upon some definite plan of operation and state their views in the journals, so the people could be fully informed that they could give the scheme their hearty support. At present they are in the dark. It seems to me the Iowa system is a good one. At any rate I learn it has succeeded. As to the \$200,000 to be asked of the State, it would be a good investment for her, if by it 20 to 50,000 immigrants could be brought in our limits. Such a number brought over of honest, industrious people, would give such an impetus to every branch of our industrial interests, and so add to the wealth and physical strength of the old commonwealth, she could well afford to pay that sum. It is reasonable to suppose that although, these people would be too poor, or unwilling, to pay their passage over, yet they would average at least \$20 a head in the coin they would bring with them, unless they were paupers or convicts and such we would not have, nor would such be allowed by the Association to come. Now, here would be in five years \$1,000,000 (one million) of dollars in coin brought in the State by 50,000 hard working people. What State would hesitate to pay \$200,000 or even \$500,000, for 50,000 people, little and big, who in the aggregate brought with them 1,000,000? But, if I understand it, it is not contemplated to ask the State to give this money, only to loan it, until these Associations could return it out of their revenue derived from membership fees, the charge that they will fix, for every laborer they furnish, and the amount they would require each immigrant to pay out of his wages until his expenses had been paid, which the society had advanced for him. From its resources the Association would have to pay its officers, its agents, the passage and board for a time after arrival of the immigrants. It seems to me the charges to the employer and the employee could be so regulated as to leave a balance after the first year, to pay back to the State the money borrowed, in a very few years. Agents should be selected with great care and paid high, that is, enough to live on as a fixed salary, and then a certain sum for every person sent over who was acceptable to the Inspector or whatever he might be called, in Baltimore, who took charge of them on their arrival. Each agent should be native to the

country where he was sent, that is a German to Germany, an Irishman to Ireland, etc. It is a highly important matter to all our citizens, and should be well considered and matured before it is fully inaugurated and put in operation, or it will fail.

REVIEW OF THE "FARMER."

The patrons of "*The Maryland Farmer*" must rejoice in its improved appearance, but more at the excellence and increased amount of original matter which graced its columns in the January number. "Plowman" in the Kitchen Garden has conferred a great favor on the young and inexperienced who have such a charge on their hands, perhaps for the first time. I know, he knows all about such work and if he does not know, I don't know who does know.

"B. W. J.'s" Ideal Poultry Farm pleased my fancy and I hope he will complete it by giving plans for poultry houses for the different kinds, both cheap, and ornamental, costly and low priced habitations for the different feathered tribes.

I am glad Mr. Jones has so well discussed the economy and propriety of planting "nut-bearing trees." It has been a favorite theory of mine, and I have often inculcated the necessity of such a practice, in many sections, and the propriety everywhere of its adoption. There is money in it, for our descendants, if not for ourselves. The nuts would well repay all cost of planting, working, trimming the trees, and gathering the fruit. In 20 years or less, the outside fences, the odd nooks and broken places, vacancies in woods, gullies, steep hill-sides, would furnish an abundance of the finest and most durable fencing materials for the farm that is now perhaps destitute or scarce of such. Locust planted for posts, and chesnut for rails. Butter-nut, and Hickory for the wheelwright; Black Walnut for building and the cabinet-maker. If planted at proper distances so the trees could grow and spread, they would yield large crops of nuts, that annually would yield as much revenue as the nett profits of 50 acres in wheat after deducting all expenses of seeding and putting in market that uncertain crop. And at the end of 20 years what would, say 2000 chesnut trees, be worth, if they had been properly cultivated with a view to their value as fencing stuff? Chesnuts will always command \$4 per bushel; Black Walnuts and Hickory nuts, \$1 to \$1.50; English Walnuts, \$8 to \$10; and if they should not ripen well, as is the case in some sections, the green nut sells high for catsup and pickles; Shell-bark, Pecan, White Walnut or Butternut, and Filbert, all grow well in our soil and climate and bring very remunerative prices.

The article of Mr. Wilkinson was both "*Seasonable and Practical*," and although it was a discharge of hot shot among the crowd of thoughtless or care-

less farmers, it will do good, by its excellent suggestions, outspoken home truths, and practical theories. I agree fully with him about autumn plowing. On stiff soils the furrows should lap well, so as to cover all the vegetation, and light soils ought not be plowed in fall or winter. The ulcers on our system of farming he has cauterized with no light hand; and he made some sore places I have, *burn*, but I thank him, for I feel the better from it. The truth is I am like some other preachers, I wot of, I do not always square my practice with what I preach, but I tell my friends "don't do as I do, but do as I say."

Grapes.

It is gratifying to know that you will in future have a Grape column, and that it is to be supplied with materials from such intelligent and energetic lovers of the Grape as Mr. Mittnacht and his associate grape-growers. What he says about the taste for this fruit growing with the supply of the article, is illustrated by the Washington market. Last year there were sold in Washington twenty times the amount of grapes sold in 1860, and at double the price per lb. The taste has yearly increased beyond the ratio of the amount of grapes offered for sale. Concord and Catawba brought 15 cents the lb. while superior sorts sold for as high as 30 cts. He says we have now "4 or 500 acres in our State in Grapes;" if our immigration society can make the people of the grape-growing regions of Europe understand the fact that we have a climate, soil, and situations for the growth of the grape, equal to any part of the Union, and with-in easy access to marts where the demand is never satiated and where prices rule high for both fine grapes in good order, and good wine; which land can be had from \$5 to \$50 per acre, according to amount of improvements and nearness to the large towns. I shall be much mistaken, if, in ten years, we do not have 50,000 acres in grapes, and the receipts of the Maryland grape crop annually amount to a million of dollars, inclusive of both fruit and vintage, the latter of course would be increased in value yearly by age. The wine which would sell at one year old for a dollar per gallon, if properly made, would bring, at three years old, a dollar a bottle. What glorious times we have to look forward to, when old Maryland shall bear grapes like the land of Eshcol, and every man's cellar be filled to repletion with wines that surpass the vinegarish wines of the Rhine and the Persimmony log-wood decoctions of Portugal, or even "the dulcet and creamy wines" of France!

Farm Gates, as described in the article taken from the *Southern Cultivator*, are good. We have such with us, made with less labor, entirely of plank,

1½ inch hemlock, and are found sufficiently strong; the plank, too, is not so wide, yet they keep out shoats.

Potash as an Ingredient of Manure.

The recommendation of "A. H." to the planters of Tobacco, in the "*Marlboro' Gazette*," to try the Salts of Potash from Prussia, is one which should be responded to by the planters to an extent sufficient to test the value of this new fertilizer. The theory of its value is plausible and seems based on scientific and reasonable principles. But while it has been extensively used, particularly in the old Dominion, I have not seen any very favorable accounts of it, on the contrary I have seen some unfavorable strictures upon its use and disclaiming its virtues. If I recollect right, Dr. Stewart, an experienced Agricultural Chemist, thought it not worth much, and wrote disparagingly of it. The essay of the distinguished Professor Mallet, is a scientific and able recommendation of this Prussian Potash for use in the culture of all plants which require potash as an ingredient in its plant food. This may be all right, but if it be only one ingredient, may it not be making the cost of the other important manures come too high for profitable use by the farmer? Several years ago I had a mixture of salt, plaster and potash, (and I used a small quantity of potash alone,) prepared by a firm in Baltimore then manufacturing fertilizers, and I found astonishing results from all three, both in the growth and in the coloring of the tobacco, but the cost was so great, the crop did not justify the expenditure, and I did not see that the land was improved by the addition of the potash, which was the costly ingredient of the mixture. Tobacco, according to the learned professors' analysis, has about as small a percentage of potash as almost any of the commonly cultivated plants. According to that analysis, these Salts of Potash would be invaluable for potatoes, cabbage, beets, turnips, sweeds, beans, and cherry trees. To such as raise these vegetables I would say, "try it by all means," and I have no doubt it is a valuable ingredient in any manure which is applied to the tobacco crop. One of the most satisfactory fertilizers in all respects to me, for tobacco, was a mixture I got Mr. John Kettlewell of Baltimore to prepare for me. It was 1 part salt-petre, (nitrate of potash,) and 2 parts plaster; the cost then, (20 years ago,) was \$3.25 per barrel of 300 lbs. He was so pleased with it, that he sold it in large quantities for use in cultivating other crops, particularly in the South, where it was found a good fertilizer for cotton. "I see," Prof. M. says, "cotton contains 42 per cent of Potash, hence I suppose the value of the nitrate of potash for that crop, mixed as it was with gypsum, that long experience has taught, acts well on all broad leaved plants."

BENEFITS OF DEEP PLOUGHING.

SANDY SPRING, Md., 2 mo, 1st, 1871.

To the Editors of the Maryland Farmer:

It is a saying which contains sound practical sense, that if persons will *read*, they will have little occasion to *write*, for they will find every thing they have to say already in print. I am forcibly reminded of this adage by the fact, that after I had commenced an article for the "*Farmer*," and written a page or more, on the advantages of deep and thorough plowing, and giving some hints in regard to the management of a farm, and the improvement of land generally, I picked up the No. of the Farmer for the last month, (No. 1,) and read the valuable paper of your correspondent, J. Wilkinson, and found that he had "taken the wind out of my sails" completely, by saying all I had to say, and more, and in such a spirited style. I therefore put what I had written aside, and in its place, recommend a re-perusal of J. Wilkinson's communication.

I will, however, add a few observations and facts corroborative of the benefits of deep ploughing, inasmuch as in some parts of our country, the idea is controverted, and an argument, drawn from recorded experiments advanced, in favour of shallow ploughing.

When I speak of "deep ploughing," it is to be understood that the object in view, is, to obtain a *greater depth of soil*—that is, of earth mixed with humus, and other vegetable and animal matter, all well pulverized. The depth should be increased gradually, and the manure increased at least in proportion. If necessary, let the breadth of land in tillage, be diminished with the increase of the depth, while the manure remains the same. It is a fatal mistake to undertake to cultivate more land than can be *well manured*, and have the requisite labour timely bestowed upon the crop.

The mechanical condition of the soil must also be regarded. Much depends on it. Professor Wells, several years ago, analyzed some specimens of soils taken from a sterile district in Connecticut, and from the fertile region of the Miami Valley, in Ohio, and he found, to his surprise, that their constituent elements were identically the same, the difference in productiveness depending on the *mechanical condition* of these elements in the soil;—the one soil being *hard and coarse*; the other, *mellow, and finely disintegrated*.

Speaking of this Miami Valley, reminds me of an anecdote against myself. About the year 1843, when I commenced farming, I had a piece of land in corn, of which, from the commendations bestowed upon it by my neighbors, I naturally felt a little proud. A gentleman came on a visit to me from the Miami Valley, and I soon took him out to see

my corn field. He asked me in slow enunciation, how much I expected to the acre? I told him, I was working it for 8 barrels, 40 bushels. He replied in the same slow speech, "that is just what my tenant gives me for my share; I let him have the land, and he delivers in my crib, 40 bushels for every acre." I was astonished! "What!" says I; "suppose it is an unfavourable season?" "We are just as certain," he replied, "of a crop of at least 80 bushels to the acre, as we plant the corn, and attend to it; and in many seasons we get 100." As may be supposed, I returned from the field with abated notions in regard to my farming.

Let us now examine a little into the mode in which plants develop and increase. When a seed of any kind, which is principally composed of starch and gluten, is placed in circumstances favorable to germination, as in warm, moist earth, the *starch*, which is *insoluble*, is, by a most interesting and mysterious natural fermentation, converted into a *kind of sugar*, which is soluble, and thus adapted to the support of the *germ*, or embryo plant. The *larger and riper* the grain, the greater will be the amount of starch it contains, and the more saccharine matter it will be able to supply to the young plant, and consequently, the more vigorous will be its growth. *Grain when fully ripe*, contains more starch than that gathered earlier, and is hence better for seed.

Microscopic observations prove, that the *germ* in every seed, is a *single cell*, of inconceivably small dimensions, endowed with that inscrutable power termed the *vital principle*. In the process of germination, a fluid matter is prepared in this cell by the agency of the vital principle, which oozes through its sides, and forms another cell. Each additional cell performs a corresponding part in the wonderful process, and thus, from these multiplied, diminutive, and singly imperceptible cells, the plant or tree is developed in accordance with the type of the species.

In all this operation, it must be observed, that that which nourishes the plant, and causes its development, must be *fluid*, in order to admit of movement. Opportunity, too, must be afforded to each new cell, for its surface to harden, partially. If the ground is *too wet*, the coats of the cell will not harden; if *too dry*, these coats become so hard, as to be impervious to the contained fluid matter on which development depends, and in both cases, growth is impeded, or it entirely ceases. We can hence see why trees or shrubs, recently transplanted, should not be too frequently, or too abundantly watered.

Now, when there is a *depth of soil*, the water, in a *wet time*, settles *below* the root-lets, or spongioses at their extremities, and does not interfere with the growth; and this water, thus held in a substratum

reservoir, rises in a *dry time*, to supply the necessary moisture to the forming cells; so that the conditions favorable to growth, will be continued longer in a *deep soil*, in either extreme of wet or dry.

The distance to which roots extend, even in grasses and plants, is much greater than is generally supposed. From the edge of a limestone quarry, on the farm of Judge Longstreth, about twenty miles, north of Philadelphia, a bank of earth fell, leaving exposed a clover root, which the Judge and my friend Doctor Noble of Philadelphia measured. It was over six feet in length, and descended fifty inches below the surface of the ground.

The late John S. Skinner, whose name can never be pronounced by any one interested in agriculture without feelings of grateful remembrance for his early, zealous, and long continued labours to advance its interests, mentioned in one of the Reports of the Patent Office, that he and two of his friends measured the lengths of the different roots of one hill of corn, and found the sum of the lengths of all the roots, large and small taken together, was *over 8000 feet*, or more than *a mile and a half*.

When we reflect that these roots are all formed from a primitive single cell by the continued addition of those diminutive cells, previously alluded to, and grow in the short space of a little over three months, we are made acquainted with some of the wonderful of nature, and see the necessity of deep plowing, and a large supply of food in the soil, in order to secure a large yield of corn.

Dr. Lee, in the Patent Office Report for 1850—51, states, that in Kentucky in 1850, on nine fields of ten acres each, making 90 acres in all, were raised 10,960 bushels, being an average of 121 bushels per acre! The average of two fields was 189 bushels per acre, each!

Compare this with the yields of our best fields, remembering that this great yield results, not from superior climate, but from *richer soil and deeper culture*. Were our soils made richer, and worked better and deeper, there is nothing to prevent them from producing as much.

I was highly pleased with the remark of an intelligent Maryland gentleman, some years ago, to one who was lamenting over the magnitude of the State debt. "Why," says he, "there is wealth enough in the two inches of the soil below seven, to pay it all." Have the soil made two inches deeper than it is at present, and *well pulverized and tilled*, and the additional yield will pay all the taxes, and give a sinking fund for the extinguishment of the State debt in a comparatively few years.

Your sincere friend,

BENJAMIN HALLOWELL.

Every light is not the sun.

From the *Marlboro' (Md.) Gazette*.

UTILIZING THE LYES ON THE PLANTATION.

MARYLAND AGRICULTURAL COLLEGE,
January 24th, 1871.

Mr. Editor :—In your paper of the 9th of March, 1870, I called attention to the importance of saving and utilizing the lyes to be gathered on the farm, and cited the practice prevailing in China, in Flanders, and in many parts of Germany, in this particular. I have also since mentioned the utilizing of the sewerage in Paris, whereby some 5,000 acres of very barren land, in the course of a single year, was transformed into a rich arable soil, producing an abundance of fruits and vegetables of various kinds.

It has also been mentioned that one hundred millions of dollars a year, would not restore to the soil of the United States, the valuable fertilizing elements which are now allowed to go down our rivers and harbors, polluting their waters and offending the organs of smell, and sometimes causing disease and death. But what is true on a *large scale* in the cities and towns of the country, is also proportionately true on many of our farms.

Since citing the case of utilizing sewerage in Paris, I have seen extracts from the first report of the "British Association Sewerage Committee," on what has been done in England in the same direction. And among the successful of many different modes of treatment (embracing from ten to twenty different towns), that of Strand is mentioned as most satisfactory where "ferruginous clay, treated with Sulphuric acid" was used, and the product is said to be made the basis of a manure that is sold at £7 10s per ton, or about \$37.50 per ton. This is virtually the same treatment used in Paris, where Sulphate of Alumina is said to have been used; and the liquid, after *percolating* through this compound, is said to have flown into the Seine "limpid and inodorous." It may be carried out in many ways without altering the chemical action. Tanks, old hogheads, flour barrels, boxes, etc., might be filled with the mixture and the lyes caused to percolate through them. Or, the stalls of horses and cattle might be arranged with perforated floors covering a deposit of the Sulphate of Alumina, of about one foot in thickness under the animal. This could be placed in a pit, dug in the earth in the stalls of the proper form and depth, and with floors that were movable might be well stirred and mixed, until uniformly saturated with the salt of the urine, and then removed to a covered shed until wanted in the compost heap, its place being filled by a fresh supply.

Yours, etc.,

A. H.

Eternity has no gray hairs.

THE KEYSTONE LAWN MOWER.



From the circular of the patentees and manufacturers Wm. L. Boyer & Bro., Philadelphia, we gather the following points of excellence of this Lawn Mower:

This mower has been thoroughly tested the past season, and has now fairly entered the race with other competitors, and cannot fail to please all in need of such an implement in consequence of its great claims and advantages, some of which are the following: Increased motion is given to the cylinder or revolving cutter head, without increasing the force requisite to operate it, which is effected by means of a planetary arrangement. The driving wheels are independent of each other, which gives greater facility for turning the Mower around trees, shrubbery, and short corners. The arrangement of the planetary gear in combination with a hollow mandral which gives direct motion to the cutter head, having the effect of not only greatly increasing the speed, but greatly obviating friction, and hence, the machine is operated with great ease. The cutter head is placed in front of the frame work of the machine, which affords greater facility to the operator in cutting up to and around shrubbery and trees. The frame is constructed of side plates as some other Lawn Mowers are, but which is rendered more durable and substantial by being supported by two iron rods, which completely prevents the machine from getting out of true, and thereby renders the Mower more effective and durable. The boxes in which the journals of the revolving cylinder run, are *open boxes*, so that they can be adjusted when required, and thus are unlike most of machines, which are provided with solid boxes, and which in consequence of wear are rendered ineffective. As durability is an important feature in all kinds of machinery, especial attention has been given to

obviate the use of all springs, cams, &c., which are so liable to get out of order. For simplicity and ease for sharpening the knives when required, without removing wheels or any other part of the machine. The roller immediately in rear of the revolving cutter head *not only* regulates the height of the cut, but perfectly controls the machine in adapting it to the surface of the lawn. In pulling the machine from point to point, as may be desired, it is borne upon the driving wheels and not upon the small roller as in some Mowers, and hence is pulled over the lawn with much less effort. The cut grass is thrown in rear of the cutters. There are 5 sizes, as follows: No. 1, 10 inch cut—No. 2, 13 inch cut—No. 3, 15 inch cut—No. 4, 20 inch cut, all for hand—price ranging from \$15 to \$35.—No. 5, 30 inch cut, for horse power, \$75. Sold by Baltimore dealers.

To Ring a Bull's Nose.—Mr. Wm. A. Wood informs us through the *Country Gentleman* of his mode to do this. He says: "Having experienced some inconvenience in holding a bull to make a hole for the ring, I hit on the following plan: Strap up one fore foot; take a small cord and fasten to the under-jaw; stand on the side that the foot is up, then draw the head round on the opposite side until he falls. Hold the head up by the cord on the side, in this position he will be helpless. I use a square pointed iron to make a hole for the ring. The ring is easily slipped in."

Tobacco stems are generally thrown away like shavings; they are worth more than straw or buckwheat stalks or clover as manure, as the plant is a great consumer of pot ash.

TETHERING CATTLE AND HURDLING.

To the Editors of the Maryland Farmer:

In the January number of the *Maryland Farmer*, I notice an inquiry by "A Pennsylvanian," relative to tethering and hurdling. In candor, I cannot give him "practical experience."

I speak from observation and a common sense view of the subject, or speculatively.

My idea of an efficient constructed tether or tedder is as follows: An iron plate 8 inches in diameter, $1\frac{1}{4}$ inches thick in the centre and $\frac{5}{8}$ inch thick on the outside. On the centre of the plate, I would place a revolving iron cone, four inches long and averaging $2\frac{1}{2}$ inches in diameter. In the centre of the plate and cone a $\frac{3}{4}$ inch hole for the admission of a round oval headed bolt—(the bolt head forming a part and completing the shape of the cone)—secured by a screw nut to the plate; under the cone a washer, and on one side of the bolt head a hole for the admission of oil. About half an inch from the foot of the cone a staple to hold a chain or rope. Around and under the plate and within one inch of the rim, I would attach four sharp-pointed rods, ten inches long, or which would be better, spears; each of the spears held in place by a screw bolt,—hammer the spears into the ground up to the plate, with a maul, striking on the bolt head—prime cost, say \$3.50. My idea is, that as the animal winds the rope around the cone, it will be released or gradually fall off at the apex.

If the cost of the proposed tether is objectionable, a tether might be made on the "elbow joint principle;" thus: A cast iron bowl, with shoulders on either side to batter against, and to hold two spears. To prevent breaking the shoulders a hard-wooden straddle, made similar in form to the letter A ought to be used, when driving the spears into the ground. In soft ground a man astride the bowl, by a jerk pressure, could force the spears down. Inside of the bowl an iron ball, two inches in diameter, the top of the bowl sufficiently high and inclined inward to hold the ball; and on the ball a staple to hold the rope. If the bowl and ball are properly cast and kept oiled, the ball will change position with the animal. Under the ball there ought to be placed a movable cup, to keep the ball in place and to hold oil.

PLAN No. 3.

A short chain, with a button attached on one end to hold it to the plate, (as per first plan) and a ring on the opposite end, to attach the rope to. A proper instrument to hold a rope to the staples or chain is the guarded hook generally attached to dog chains.

Horses inclined to wander ought to be either hobbled, soiled or guarded. By tethering, they invari-

ably become entangled in the rope. As regards small flocks of sheep, they may be tethered profitably. But as a general practice I would employ a shepherd and a well trained dog. The expense incurred would be trifling, in comparison to the loss sustained by exposure to worthless canines, or rather curs. Hurdles are used to some extent in Europe and America, principally made in detached parts and portable. Figures of them can be seen in Loudon (English) Encyclopædia, and probably the Maryland and Eastern journals of agriculture.

Were I to construct a burdle, (if I may so call it), I would make it of medium dimensions, and all the parts permanently attached; at either end of the sills, double-wide tread truck wheels, 14 inches in diameter. The chief advantage of having double rollers is the convenience of turning, when changing to a fresh pasture.

By attaching a pair of mules the structure could be easily removed, and the animals within not materially disturbed. When not wanted for ordinary pasturing purposes, it might be used for hurdling swine, on a Pea Nut or Jerusalem Artichoke plantation, which food, with a small portion of corn and oats, or refuse vegetables, with unsifted wood ashes, broken charcoal, a little salt and sulphur, good bedding and shelter, the swine would be kept in a healthy state and fare abundantly. It would also serve a good purpose for hurdling sheep on turnips previous to being slaughtered.

After writing the above, I notice in *Loudon*, page 876, remarks relative to tethering, etc. They read as follows:

"Tethering may be considered a rude practice, and is chiefly confined to the north of Scotland and Ireland. In the Agricultural Rep. of Aberdeenshire it is stated that there are some cases where the plan of tethering can be practiced with more profit than even soiling. In the neighborhood of Peterhead, for instance, they tether milch cows on their grass fields, in a regular systematic method: moving each tether forward in a straight line, not above a foot at a time, so as to prevent the cows from treading on the grass that is to be eaten, care being always taken to move the tether forward. * * * In this way a greater number of cows can be kept on the same quantity of grass than by any other plan; except where it grows high enough to be cut, and given them green in houses. In one instance, the system was carried to great perfection, by a gentleman who kept a few sheep, upon longer tethers, following the cows. * * * This system was peculiarly calculated for cow feeders in Peterhead, as, from the smallness of their holdings, they could not afford to keep servants to cut, or horses to carry home the grass to their houses, to be consumed in the green state. In hurdling off clover and herbage crops, a portion of the field is enclosed by hurdles, in which sheep are confined; and as the crop is consumed, the pen is conveyed to a fresh place, until the whole is fed off. This practice is very extensively adopted at Holkham, and is peculiarly calculated for light and dry soils. Its advantages are

that the grass is more economically consumed; that stock thrive better, having a fresh bite."

When the horizontal plan of tethering is practised, I suppose a rope and stake is the only stay required.

Shepherd Dogs.

I suggest that a party of our most enterprising and influential Maryland farmers who raise sheep, consort together and import, say two shepherd dogs and twelve sluts, (the parties to be equally benefitted by the service of the dogs,) thoroughly trained to guard sheep. By advising with our most prominent cattle importers the address of reliable Europeans can be obtained, who will make a judicious selection. I know of no investment that would pay a cattle importer a larger percentage than such a canine enterprise. Our American sheep raisers would willingly pay \$100 or \$150 for a dog guaranteed to be thoroughly trained. The imported dogs, aided by the shepherds, would train their broods to be equally efficient guards as themselves. Thus enriching the importer and gradually introducing these valuable animals throughout the United States. There are three different breeds in England and Scotland said to be equally sagacious. Probably also in northern Germany.

Excuse me, Messrs. Editors, for my lengthy scribblings. The truth is, I am so completely weather bound that I am compelled to resort to in-door amusements for exercise.

FLOWMAN.

For the Maryland Farmer.

HINTS FOR SPRING WORK.

One might think that nothing more of any value could be said upon this subject, but it is one that bears much repetition. New laborers are every year entering the field, who, though sanguine of success, are unfamiliar with the details of garden work, and who, of course, need instruction. Besides new hints of value are often thrown out by this or that writer, which if acted upon, might save a deal of trouble and expense.

The month of March is a busy one all over our domain. In the extreme South out-door planting is now far advanced; in the North hot-beds and forcing-pits are still in requisition. But everywhere all is activity. Seed-time has come, and the laborers hie to their work. What a picture to the mind's eye does this vast army of workers present! How noble the cause in which they struggle! But to be practical:

As to the time of planting the several sorts of garden seeds, that must depend upon the nature of the plant and the latitude. Best not to be in too much hurry; but the land should be heavily manured and made ready for planting when the season has fully opened. Break the land *deeply* if you wish your

plants to withstand dry weather. After breaking, level and make fine. A simple and economical way to apply manure is as follows:

If you cultivate by hand, open furrows with a grubbing hoe just where you wish your plants to stand. Fill up these trenches with fine compost, adding guano, or other fertilizers. Then draw the soil back over the manure so as to form a ridge. Flatten this ridge, and make a small trench for the seed. Cover with fine soil and press with a hoe or roller.

By applying manure in this way you have it immediately under the roots of the plants, just where it is needed; and less manure will answer than by broadcasting.

The character of the plant must decide the distance apart for the rows. The object of having ridges on which to plant is simply to keep the seeds out of standing water in case of heavy rains.

After planting, your work of nursing and tending must be continued with unremitting attention. You have much to do—many foes to battle with before permitted to eat the fruit of your labor. You must plant, replant, and transplant; watch against insects; and protect from frost. In due time your reward will come.

All engaged in the delightful vocation of gardening should keep a garden register, in which the time of sowing and kinds of seeds sown should be accurately entered. Also kind and quantity of manure, character of soil, and of the cultivation. It would be interesting to note also—if one has the time to spare—the state of the thermometer and temperature of soil at time of planting; first appearance of plant above ground; period of flowering, and time of gathering first ripe fruit; the seasons; and failure and decay of plant. Every gardener should have several thermometers, and should know how to use them; also a barometer.

B. W. JONES.

BORERS IN FRUIT TREES.—At a recent meeting of the American Institute Farmers' Club, Mr. Reed, of Perth Amboy, said that he had succeeded in keeping borers out of his fruit trees, by putting a jacket of ordinary roofing paper about them close down, in the spring. He tied the paper closely so as to leave no place for the borers to get through. Mr. Quin said that this was well as far as it went, but he had found borers as high up as the main branches. Mr. Fuller said that this only happened once in a thousand times.

REMOVING WAX FROM EAR.—From careful experiments made by a physician of Lyons, it has been ascertained that the old remedy of warm water is the best solvent of accumulated wax in the ear, being superior to olive oil, glycerine, &c.

Hints on the Potato Crop.

To the Editors of the Maryland Farmer.

I send you in condensed form, a few hints, relative to the potato crop. Preparation of the soil, manuring, etc., is now, I suppose, pretty generally understood. I allude particularly to garden or month of March planting.

1st. Procure the Early Rose, Quaker or Goodrich. These three sorts ripen in succession.

2d. Cut off the but or refuse end of the potato, the remainder in pieces averaging $\frac{3}{4}$ inches in diameter—one strong, vigorous bud to each sett.

3d. Spread them in a dry, airy loft to harden.

4th. After laying about five days, "black water" the setts, and sift dry ashes over them.

5th. Shovel up and mix that the setts may be equally benefited.

6th. Plow out furrows about six inches deep.

7th. Plant ten inches apart, follow with manure.

8th. Cover with a one horse plow, running the plow on either side.

9. Roll, harrow if you will, the ridges down flat.

10. Previous to cultivation, top dress the vines with a mixture of hen droppings and ashes, or super phosphate.

Plant the setts, from the small end of the potato separate, which will be the first to ripen.

Planting more than one sound bud to each sett, is superfluous, and a serious waste of seed.

By using the potato scoop, instead of a knife, full one half the potatoes may be saved for culinary purposes.

BALTIMORE COUNTY.

CULTIVATION OF THE GARDEN PEA.

The following is the mode of cultivating the garden pea in the vicinity Norfolk, Va., as practiced by D. H. Long :

The Garden Pea is extensively grown for Northern markets in this as in more Southern latitudes, bearing transportation better, perhaps, than any other vegetable, if picked in a proper condition. The soil best adapted to its growth is sandy loam, deep and rich ; avoid light sandy soil, particularly if on hill side ; these lands should be well filled with rotten vegetable matter, as the vines will fire in protracted droughts ; and the pods be short. Its profitable cultivation is reached by comparatively few persons, in consequence of the injudicious selection of lands and manures, and the slovenly manner in which it is planted and cultivated. Well rotted horse manure, bone dust and guano give the best results. If Peruvian guano is used in excess, and the season be wet, rust will be produced by the bursting of the sap vessels in the stalk, to the detriment of the Pea. Plow and harrow the land well ; sow three and one-half to four feet apart. If the

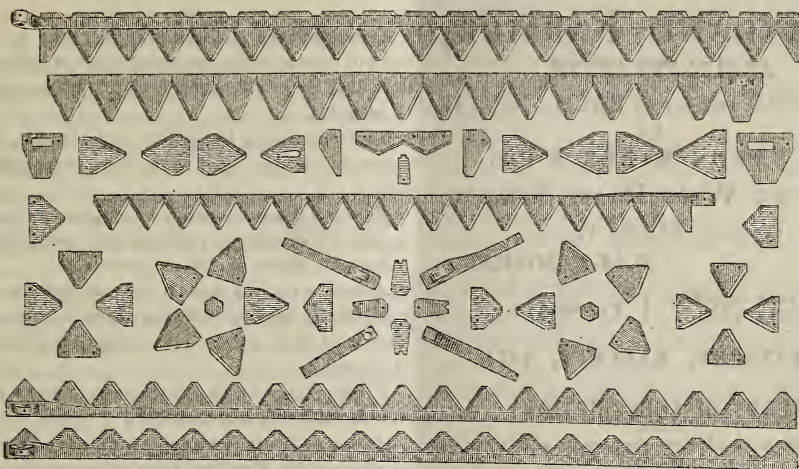
land selected be low, put it up in beds ; if high and sandy, plant flat, as the moisture will be retained longer. If guano be used, rake a small quantity of dirt on it, to keep the seed from coming in contact with it, or the germ of the Pea will be killed. Sow seed thinly in row out of the hand, dropping the seed rather than throwing them ahead of the person.

After trying various methods of seeding Peas, I selected a chunck bottle with neck broken slanting ; this will distribute them regularly by keeping it on the shake. When very large crops are planted, seed drills are used. Apply manure liberally on the seed and cover with rake. After the Peas are about two inches high run the bar side of the Plow as close as possible without covering them up ; rake by the side, removing clods, pulling grass, if any ; when they attain the height of 6 inches side again. At this plowing the land must be in a moist state, but not wet ; if dry and hard, it will turn up in cakes. This is the most important operation, in my judgment, in order that the crop may not be dwarfed in the incipient stage of its growth. The plow and not the cultivator should be used to thoroughly stir the soil deep and close by its roots. Return the dirt by throwing one furrow on each side the Peas, hilling them ; finally follow with rakes, uncovering and straightening those having clods on them. Before blossoms appear, break out middles with a larger plow, which will raise more dirt to steady the vines, as no sticks are used in large plantations. In laying off rows, be careful not to have them run in the direction of the prevailing winds but the reverse, that the vines may be thrown and held down until the storm be over. I have seen Pea crops ruined by not taking this precaution, being bruised and wrung at the root. When pods are well filled, gather, rejecting those with rotten ends, which is caused by having been beaten in the ground, as they injure the sale of the perfect ones. Pack in clean, well ventilated barrels ; cover with thin cloth.

Early varieties, extra early—perhaps there is a half dozen kinds sold under this name that proves to be late. Landreth's Extra Early, Early Hancock, Early Kent, Early Canada, are the most sure with us. Daniel O'Rourke proves to be late in this vicinity, and is not planted here to any extent, save by those in want of cheap seed. Late varieties—Black Eyed Marrowfat and Champion of England are preferred here to all others. These of course require sticks to support them. The first Peas sent North from Norfolk bring \$12 to \$15 per barrel. These figures cannot be long maintained ; as the crop becomes plentiful prices fall as low as \$2.

REMEMBER that all surface water passing off the land in a rain, instead of passing through the soil, loses to the soil what fertilizing matter it may contain. Underdraining arrests this, mostly.

REAPING AND MOWING MACHINE KNIVES AND SECTIONS.



The manufacture of reaping and mowing machines has attained such large proportions as to make it one of general interest. The annual production is now estimated at about 125,000 machines. Few facts more clearly demonstrate the immense wealth of the farmers of our country than that they expend each year about \$20,000,000 in the purchase of this one class of implements.

The above cut illustrates the manufactures of the Simonds Manufacturing Company, an extensive establishment whose sole business is making Reaping and Mowing Machine Knives and Sections. There are several factories of this kind in the country, all of which we believe do a large and flourishing business. Twenty years ago it would have surpassed belief that such a concern could find trade enough to support it, and their success is suggestive of the immense number of machines that are now annually being built and used. There are from fifteen to eighteen sections on a knife and these require reaping on an average, say once in three years. This will give some idea of the immense number of knives and sections that are required. The manufacturers make the sections for nearly every machine sold in the United States, and pack them in small paste board boxes distinctly labelled to prevent mistakes. E. Whitman & Sons, of Baltimore, are the agents for the manufacturers and have nearly every kind of sections used in this portion of country.

THE SANDFORD CORN.

George Wm. Wilson of Auburn, Ohio, gives his experience with the Sanford Corn, which is advertised in this number of the *Farmer*, by G. S. B. Fanning, of Jamesport, Long Island, New York. He writes:

In a late number of the *WESTERN RURAL* is a statement of "A. W.," of Lawton, Mich., to the effect that the Sanford corn "is nothing more nor less than the white glazed corn introduced there a number of years since—that is *very late*, rather later than the common Yellow Dent." As I have had some experience in raising the Sanford corn, permit me to correct the statements of your correspondent, "A. W." The Sanford is a new and distinct variety, produced by careful hybridization, and selection of best seed from year to year. The testimony of the Long Island farmers, who are fully acquainted with the history of the Sanford corn, places this point beyond doubt. In regard to the statement that it is "very late," permit me to say that the testimony of farmers in every State proves that it will fully mature in *ninety* days from the time of the

planting. In regard to yield, I desire to say that during the past season I have raised, on old ground, on which corn was grown the previous season, thirty-five bushels of ears on one-fourth of an acre, which is at the rate of one hundred and forty bushels per acre. A farmer of this place raised thirty-eight bushels from the same amount of ground, which is twice as large a yield as we could expect from the ordinary varieties. From my own experience, as well as that of many others, I am fully satisfied that the Sanford is one of the most desirable varieties now in cultivation.

In conclusion, Mr. Editor, allow me to say that I have no "axe to grind."

X. A. WILLARD gives it as his opinion that hundreds of thousands of pounds of cheese have been lost during the past summer by the lack of attention to the temperature of curing rooms. Progress had been made during the past few years, but much remains to be accomplished, and the principal improvements must lie in securing a proper and uniform temperature of the cheese while curing.

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 Robert Sinclair,
 B. W. Jones, Va.,
 Geo. H. Mitnacht.

SALE OF SHORT HORNS.

Mr. Charles E. Coffin, of Muirkirk, Md., sold about the middle of February the following animals. A portrait of Radical was given in our November of 1870.

To James M. Byars, Glade Spring Depot, Va.

Short Horn Bull "Radical 8886."

" " Cow Ringlet.

" " Heifer Elvina 5th.

One Grade Heifer and one Berkshire Sow.

To D. W. Kyle, Forrest Depot, Bedford co., Va.

Short Horn Bull "Muirkirk Laddie."

" " Heifer "Bonnie Muirkirk."

Three Grade Heifers.

The animals, together with the Short Horn Bull 2nd Earl of Oxford, were shipped on Tuesday morning, February 21st, for Lynchburg.

BONES---COARSE OR FINE.

A correspondent at Montrose, Va., asks us questions in respect to the use of bone, all of which we have answered so frequently before, that we propose to be quick.

His first question is—Which is preferable, bones coarse or fine, having in view their immediate action?

Answer.—Unquestionably bones ground very fine, as they are necessarily rendered more easily soluble.

Second.—Where can he get pure bone?

Answer.—On this point it does not become us to discriminate between different manufacturers. He must trust to his own judgment and the reputation of the seller.

Third.—How can he reduce raw bone to a fine soluble condition economically?

Answer.—We refer him to almost any of the back numbers of the *Maryland Farmer* for the past year.

Fourth.—How much bone should be used to the acre?

Answer.—If finely divided, from 250 to 300 lbs to the acre.—*Ed. Farmer.*

For the *Maryland Farmer*.

IS SAND SOLUBLE?

This question is answered both negatively and affirmatively on the 44th page of the *Maryland Farmer*. First, the writer says—no, it is not soluble—and then, yes—it is soluble. Again, he says certain sand does not contain silicates, and then he asserts that the same sand dissolves in the weakest (carbonic) acid, at ordinary temperatures—viz: "This body (sand) is an acid, at an ordinary temperature is inactive, but at a *white heat* this acid is exceedingly active."

"The stores of potash which supply plants with saline matter are in the form of silicates." "These (salts of silicic acid) are slowly decomposed under the influence of carbonic acid which render these (salts) soluble."

"In the case in question the soil is a *mere sand** devoid of soluble silicates."**The oil gives off carbonic acid which renders soluble the silica!"

Now, what are we to believe? The old, and I believe the true doctrine is, that sand, however fine the powder, is insoluble, but *salts* of sand, or silicates, are soluble in proportion as the base is increased—or, by carbonic acid, thus practical farmers say that leached ashes (which abound in silicates) and Jersey green sand are better fertilizers than potash, as they yield *soluble* silica, whereas salts of potash do not and some salts of potash (such as the chloride) ruin sugar plants.

SIGMA.

Port Penn, Del., Feb. 9th, 1871.

EXPLOSIVE LAMP OILS.

WOODSIDE SCHOOL, Feb'y 16, 1871.

To the Editors of the Maryland Farmer:

If the present month is not too far under way with your *Farmer* for March, I should be glad to send you the results of some 15 analyses of coal oil and burning fluids, made eight years ago, in the Laboratory of the Agricultural College, and during the past two years in my own Laboratory, since the cessation of my connection with that institution.

My attention was first drawn to this matter twelve years ago, in the winter of 1859, at Chester-town, by the explosion of a student's metal lamp, in third-story bed room of Washington College, when I was then Professor of Chemistry and Natural Philosophy.

My results have been reached with what has been sold to me in Washington and Baltimore by dealers, as coal oil, or "Burning Fluid," since October 20th, 1860, up to the first day of the present month. These analyses agree pretty closely with the 6th, 7th, 12th, 13th and 14th conclusions stated by Professor Fowler, of Geneva Medical College, and quoted in to-day's *Sun* by Fire Inspector, C. T. Holloway.

But I should not feel justified in calling a specimen of coal oil "good" (in the sense of *safe*, as Prof. F. seems to use the word,) from an examination of the specific gravity only.—[See Scientific American for 1869-70]

As you know coal oil, both before and after being refined, is a mechanical mixture of several hydrocarbons (C. H.) which vary quite as much in their illuminating power, color and temperature of flame, freezing point (c. c. point at which they temporally become solid,) and proportion of oxygen required with their own vapors, to make an explosive compound vapour, as well as in the influences produced upon the *brilliancy, heat and rapidity of consumption* of a coal oil flame by the ever varying Barometric pressure of the gravitating atmosphere.

Now while a Guyot's Barometer (Smithsonian pattern) with micrometer reading, affords very delicate registry of the varying atmospheric pressure, the coal oil flame by its heat and intensity may be made to render to the common photometric apparatus used to determine the quality of coal gas, very striking correspondences with the rise and fall of the mercurial column. That the ratio of consumption of a *mixed* Kerosene when compared with the rate of consumption of a pure Kerosene, I have long satisfied myself is a true comparison in estimating the safety of these fluids. A *common graduated tube* of glass, such as is used in Volurne-

tric Analysis, to which a coal oil burner and wick are attached, gives a very good and simple "Graduated lamp" by which to determine the rapidity with which any "Patent oil" is consumed, and for comparing the same with Kerosene of Sp. gr.—0.715.

In my first analyses I employed artificial cold, (c. c. several freezing mixtures given in all our chemical text-books,) to produce successive separations of the several articles used to adulterate commercial kerosenes. But I could only obtain the products in small quantities. Prof. Fowler separates them by heat (c. c. by distillation.) The extreme cold of the last seven weeks has enabled me to separate the *most volatile* oils from those *least volatile*, with the readiest facility; and by mere filtration through finely powdered pumice stone to obtain *thin films of volatile and suspected naphas*, ready for explosion or combustion with the completest ease, and in any quantity required. In this way it is easier and more rapid to operate upon gallons of "Patent fluids" contained in *common tin cans*, than to manage pints or fluid ounces, by the method of heat and distillation.

As coal oil is chilled an alteration takes place in the *mechanical arrangement* of its particles, somewhat similar to that in coarse grained and fine grained gun powder, [compared with "powder cake," as we see it in the powder mills before grinding,] on which depends the *instantaneous and violent character* of the explosion of gunpowder.—This suggests that the *mechanical condition* of explosive compounds is more influential in determining *explosibility quiet combustibility*, than is their chemical constitution. Now evaporation changes only the *mechanical nearness* and remoteness of the particles of the vapour, in comparison with their close contiguity, in the fluid state, thus admitting or impeding the admixture of oxygen, to produce more and more violent explosions and detonations, as we see in cannon powder, and in Dupont's best pistol powder. Not only heated glass plates, but smooth and rough metallic ones, and *charred carbonaceous* wicks, will inflame the vapour of kerosene and naphtha, at a temperature *much below* 212°. As the common house lamps are extinguished by *suddenly* turning them down into the *hot* metallic stem, they do what they ought to do, viz: explode sometimes, for their *hot charred* wicks are placed in the best possible condition to explode the vapour, in, around and below the *hot charred cotton film*.—Eighteen years ago I watched a young mother and child in the northwestern section of your city, both horribly burned and disfigured for life, by this means—the child was burned from its feet to its waist; it lingered in agony six weeks. The mother was carrying in her arms both the *child and a com-*

mon fluid lamps; inadvertently either mother or child depressed the wick suddenly; explosion followed instantly; the disfiguring of the mother and of an infant unable to walk, being the final results!

As these lamps are *carried* about our houses, they often present the following phenomena, a flame at one end and a fool at the other. The one a physical incendiary, the other, sometimes through carelessness, both incendiary and victim; between these two causes of "*accidental*" (!!!) fires, we have arranged, first, the flame; temperature over 327°F; next 3-10th inch of *red hot* carbon, then a mass of woven cotton tissue, soaked in warm coal oil and surrounded with vapours of several naphthas, then a mass of cold wick, say 40° F; a vapour of explosive mixed gases; a thin shell of glass; and then the hand and clothing of him *who carries the lamp*!

If a country *frame* house gets on fire *after bed time*, the result is usually, entire loss. Till we have safer and better lamps, or more carefully inspected oils, insurance companies *should refuse to insure any frame dwelling in the country when such lamps are used*. Their policies should state that the *use of coal oil lamps* or the possession of mixed naphthas, made void the company's liability. *This and nothing short of it*, is an efficient remedy against the double evils of an ever present danger, and a law inefficiently carried out. At 7 A. M., 2 P. M. and 9 P. M. many naphthas are, I suspect, more explosive than at the other hours of each twenty-four. The fire records will show how many fires traceable to lamps originate at these daily recurring periods for putting out lamps burnt before bed time, or kept burning *all night*.

This letter is already too long. But your interest in *our rural homes*, will suggest my excuse.

Yours respectfully,

MONTGOMERY JOHNS, M. D.

For the Maryland Farmer.

OUR SURPLUS LANDS.

It becomes a matter of paramount importance to the prosperity of any community or State to have its surplus lands occupied by an industrious, enterprising, and sober population. We have but to look at the condition of any thinly-settled district to be convinced of the evils of sparse population. In such communities we find few of the conveniences that make life agreeable or endurable. Churches and schools are few and poorly attended; social intercourse is interrupted; mills and roads are of the poorest kind; no railroads, newspapers, or public libraries; arts and trades are neglected; agriculture does not flourish; ignorance and pauperism abound; prejudice, vice, and crime clog the wheels of progress; and the whole cumbersome and rotten

fabric rests, like an incubus, upon the breasts of the State, extending its contaminating influences to other more favored sections.

This condition and results of sparse population, which might be drawn in much darken colors, should be sedulously guarded against by every community of people having common interests in a common cause. To do this they must take care to multiply farms and homes to the whole extent of their territory. What is the best way of doing this?

To my mind the remedy is simple and practical enough. Let land-holders agree to sell off, say half of their surplus lands, at a nominal price to actual, industrious settlers; holding the remainder for the benefits that would result to them in the increased value of real estate. To find occupants for these lands let them *first* see that every native born white man amongst them has a home of his own, *even if they have to give them land*; and then, by all proper means available, induce immigration of *such individuals only* as would be a useful acquisition in an industrial and social point of view. I say of *such only*, for it will be a sad thing for us, if in our haste to increase the population, we get a community of vagrants, tricksters and idlers. We do not want more of this class; have too many already. Let this point be kept in view by every people inviting immigration.

And when sober, honest, and upright settlers arrive, let the people extend to them at once the common courtesies of society, and aid them in such manner as they can during the first, and trying year, of their sojourn, so as to cause them to feel at home and among friends. If the first that arrive are well and kindly received, others of their kindred will follow on; and thus holders will be able to sell the remainder of their lands at a handsome figure. The car of progress would move onward, the burden of taxation be lessened, and the conveniences that spring up in the wake of an enterprising people would result. Agriculture, trades, commerce, and education would greet us with their manifold blessings; and soon from our bosoms we should be able to send forth children to occupy the waste places of the earth, and make them beautiful and joyous like our own. B. W. JONES.

TO HAVE GOOD COFFEE.—Burn no more at a time than you want to use at once, or twice at most. Grind very fine, and pour on boiling water. Set the boiler on the stove and let the coffee boil, but not more than one or two minutes. The less it boils the better. Do not let it remain long in the boiler, but serve immediately.

New land is excellent for turnips; so is any light vegetable mould, sod included; and the *ashes* of sod best of all, says an eminent authority.

Horticultural.

For the Maryland Farmer.

THE PEACH---TOO MANY VARIETIES.

No other fruit shares half the attention with the farmers of this Peninsula, as does the peach. It is one of the chief staples of the Eastern Shore of Maryland. No where on the vast acreage of the Republic is it grown to a higher standard of excellence and perfection than here; the climate and the soil, generally speaking, being such as are admirably suited to the normal requisites, for the full development and longevity of the tree. However great, though, may be the preference manifested for this fruit, it not unfrequently occurs, that the orchards are shamefully mistreated in various ways—sometimes starved and stunted for want of proper manurial matter in the soil—or perhaps enfeebled by too liberal and ignorant application of the knife and shears—again, absolute neglect in plowing and keeping the soil in loose and friable condition.—And too often, where the plow is used in the orchard, it is run too deeply, coming in contact with, mangling and bruising the roots of the trees. How often we see peach orchards entirely defoliated, as unnaturally early as the middle of September, and in some cases even a fortnight earlier. I need not advert to the cause. "*Thorough cultivation*" is voluminously significant, alike to the fruit grower and farmer, and will perform wonders even on "*lean*" soils. Another point, and the only one upon which I shall offer any suggestions, and that is one associated with the wearying labors of the brotherhood of my own calling, viz: The unreasonably long lists of varieties; every catalogue, regardless of the nursery it represents, contains names of from 25 to 75 different kinds of peaches, from two to six of which ripen at the same time, or so nearly so, as to be classed in the same "*Picking*." The experienced peach grower will not have more than 12 or 15 kinds at most in his orchard; and it is a fact conceded by the most shrewd and successful growers that "the smaller the number of varieties, extending over the entire peach season, the less trouble and more profit." These varieties being selected with a judicious knowledge of their actual merits and characteristics as market peaches with a view as well to the nature of the soil in which they are to be grown, as some kinds are better adapted to certain soils than others, or in more truthful and reliable logic, some varieties will stand more abuse than others, and will therefore battle more vigorously and successfully against the stunting influence of the uncongeniality—sectionally depicted in soils for want of proper prepara-

tion. I might cite numerous instances that have come under my notice where the trees of a standard or well known variety, produced very ordinary fruit. And in another orchard, within half a mile of the first, the same variety was everything that could reasonably be desired. The cause—condition of the soil. I speak of orchards only moderately well cultivated, for the *thoroughly* cultivated ones are too far between to draw fair comparisons from, and the too many neglected ones are not worthy of notice. But why is it that nurserymen do voluntarily heap upon themselves the worrying trouble of keeping up this extended list of varieties, when two-thirds of them are really superfluous and tend more to confuse and mislead the inexperienced planters than to benefit anybody? There is no practical nurseryman who does not know that a majority of the varieties of different classes of fruit are seldom called for in the selections of the successful planters and growers—that it is a matter of no little inconvenience to themselves to keep distinct and pure so many kinds; and lastly, that the eccentricities and peculiarities in the whimsical desires of the few, who only want what their neighbors have not got, are encouraged at the expense—of who? Not the cynical fruiterer, whose appetite is pampered more upon oddity and uniqueness than upon the luscious excellence of the good and profitable varieties. Two classes of individuals bear the greater part of this expense, viz: the nurserymen and the inexperienced planter. It is not presumption to assert that every *nurseryman*, who honorably fulfils his calling, has a reliable knowledge, based upon personal experience and practice, of all the leading kinds of fruit; neither does the education of the good nurseryman stop here, for if he be faithful and competent in his calling, surrounded by the various facilities for obtaining knowledge relating to his business, as at this age he should be well posted on the new as well as the old. Such being the truth, we know that in twenty varieties of the peach, can be embodied all that the best interests of the orchardist can claim, and by having no more, we can remedy the many evils that unhappily the inexperienced planter falls heir to. Would we not, thus wise, escape the harsh censure (just and unjust) that is deluged in copious showers upon our craft? True, there may be some peculiarities about what I choose to term superfluous varieties that entitle them to perpetuation in the *nursery*, but in comparison with *first-class* market varieties, are they worthy the attention and valuable time of the orchardist, or he who prefers to live by his crops of fruit instead of crops of grain?

J. W. KERR.

Denton, Md., Feb'y 14, 1871.

Subscribe to the FARMER.

Grape Culture.

For the Maryland Farmer.

PRUNING THE GRAPE VINE.

Perhaps on nothing else, in the vineyard, is there more difference of opinion than on pruning the vine. Out of a dozen men, hardly two think alike, neither will any two books agree on the same subject. I have studied the different modes of Grape Culture in books, and have carefully observed, how the best grape growers treat their vines, but practically applied however, not one alone gave me entire satisfaction. Nevertheless, I have learned something from many of them, and was enabled to choose, which I thought the best system, and which, with proper modifications, will apply to the different species of vines. The object of pruning should be to insure plenty of fruit, good strong healthy canes, and well developed buds to bear fruit the coming years. To understand the principle of this, we must study the simple structure of the plant. Without this knowledge, pruning cannot be carried out successfully. Mr. Mohr, a German author, has thrown more light upon that subject, than any other writer on Grape Culture. The main parts of a grape vine, in summer, consists of the stem, cane, and the shoot or branch. The branch lasts about six months, from May to October, when it turns brown and becomes a cane. The cane lasts for twelve months, from October to October, when it changes to a stem. The stem lasts as long as the vine, from twenty-five to hundreds of years. The shoots of canes will bear fruit the coming year.

The shoots from the stem require one season's growth, to form buds to bear fruit the year after. I will now describe the branch with its appendages. The node or joint in the branch, is the organ, by the repetition of which the vine is constituted. A fresh shoot of the cane has nodes from three to five inches apart. These nodes are repeated on a shoot perfectly alike, only the organs in a reversed position of right and left, farther apart towards the top than towards the base. It breaks easier at this place, than at any other, when bent to one side. On the lower side is nothing or only the leaf, all other organs grow on the upper part. Later in summer this joint disappears, the fibres run through, and it cannot be broken evenly off at this place. Immediately above the leaf, in its axle on one side, one or two unequally large buds will grow. From one of them a lateral or side shoot will proceed, and in the course of the summer, a new eye called a dormant bud, forms aside of the lateral, intended to furnish in the coming Spring, again a new branch. This branch is attached to the main cane

by means of a joint, easily broken off at this place, but later in summer, when the fibres have grown through, the lateral cannot be broken off at that joint, unlike the leaf which is only attached to the branch by a joint, and will drop off in the fall. Opposite the leaf and bud is a tendril, without a joint. The fibres run through from the very beginning, and they cannot be broken off, dry up in the fall but never drop, and are separated the next year by winds, &c. These tendrils assist the vine in climbing, and are longer towards the top than near the foot of the vine. Under favorable circumstances they will be peduncles or bunches of grapes, and may therefore be called fruitful or unfruitful peduncles. The peduncles are closely connected with the leaf opposite, but in what way cannot be exactly explained. By splitting open a cane, you will find the pith running very evenly through the centre, interrupted only between the leaf and peduncles, where part of the sap is carried to the leaf and after being elaborated, crosses over to the fruit. The lower fruit buds are always the best, having been formed early in the season, the upper buds being formed later, seldom come to maturity, to bear fruit the coming season. I do not mean the lowermost buds on a cane, for they are seldom fruit buds. The two fruit buds following one another, have peduncles opposite on the node, and will bear fruit, the third bud has no peduncle and is therefore barren. The two succeeding buds have peduncles, and will also bear fruit, but above the fifth leaf you need not often look for well developed fruit. This shows clearly, that all the wood above is superfluous, and only deprives the fruit of the nourishment necessary to develop and ripen it. It is best, therefore, to pinch off the shoots about two leaves above the highest bunch of fruit. In the fruit buds of last year lay already in embryo, the shoots and blossoms for this year. After very severe winters, blossoms, will not be in the spring, as well developed, as after mild winters, showing that they are of a higher nature and more susceptible to cold and heat. I have already stated that aside of a lateral, will form what is at first a dormant bud, but which will, during the summer, change into a well developed fruit bud. If you break the lateral off, this bud will start a new lateral prematurely and a new dormant bud will form aside of it, which, again would start if the new lateral was broken off, and would keep repeating a number of times, but these buds will never reach maturity, being too late in the season, and will therefore not bear fruit. Sometimes laterals are broken off late in the season, the buds will start, and about in August, will bear a second crop of fruit, which being too late will not ripen. This shows that the blossoms were already fully developed in the buds to bear fruit the following

year. It also shows that the laterals should not be pinched off at all during the summer, or if pinched off, it should be done for the first time, above the first leaf, next above the second leaf and perhaps after, the third leaf. In this case you will not have so many leaves, but they will be much larger, can perform the same duty, and can stand the change of the weather much better than small and thin leaves. I can speak from experience, as last summer, about the latter part of September, after the drought, I cultivated my vineyards thoroughly, and had all the laterals pinched back two and three times, when we had two heavy rains, which with the unusual mild weather at that time, started the fruit buds for the following year, into new laterals and many are lost for next season. This was particularly noticed in the Clintons, a strong growing variety. You will see from the above that fruit will not issue from buds of shoots, grown the first year from the stem, but only from the shoots growing out of canes from last year, also that the lowermost buds are not fruit buds, and their shoots with the exception, perhaps, of one for a new cane, should be removed. Also that two fruit buds in succession will have peduncles opposite, and produce fruit, that the following bud will have no peduncle and therefore no fruit, that the next two buds will also have peduncles and bear fruit. All wood beyond two leaves above the uppermost bunch, is not needed to mature the fruit, or to form new fruit buds for next season, and may they therefore be removed, also that the laterals should be pinched but very little, if at all, to form good fruit buds. In my next, I will give you the different systems of the treatment of the vine; in the meantime I would advise all those, who wish to embark in the culture of the Grape, and have no system laid down, to purchase the *Grape Culturist*, by Andrew S. Fuller, published by Orange Judd & Co., 245 Broadway, N. Y., and the *Grape and Wine*, by Geo. Hussmann, published by Geo. E. and F. W. Woodworth, 37 Park Row, N. Y., the price of each is \$1.50.

G. H. MITTNACHT.

Pikesville, Baltimore Co., Md.

ISABELLA AND CATAWBA GRAPEVINES.—A correspondent of the *Country Gentleman* says: The complaint that the Isabella and Catawba grapevines do not ripen their fruit, is a very common one; but in many cases the trouble arises from planting the vines in a soil and position not adapted to their requirements. If the roots of the vine permeate an unfavorable soil, or the sun does not have full access to its branches, neither the most elaborate culture, nor the most skillful pruning will cause it to produce a proper quantity of well-ripened fruit.

GROWING GRAPES.

CULTIVATION.—Lands that would produce a good crop of corn or wheat were enough for grapes—preferred a rather dry porous sub soil. There was no land in the West too poor for grapes.

EXPOSURE.—A steep southern hillside had been considered best, but he preferred a northwestern exposure.

DISTANCE IN THE VINEYARD.—Ten to fifteen feet for strong, growing varieties, and from six to ten for the weaker ones. The vineyard should be so arranged as to allow of plowing north and south one year and east and west the next.

TRAINING.—Approves of the spiral system, wants some of the old trunk preserved. The stake should be so set that the vine will have to bend obliquely. Had succeeded well training vines to trees. Dr. Warder remarked that all trees were not congenial; that black walnut is especially pernicious to the vine.—*Ill. State Hort. Society.*

Pruning Pear Trees.

A correspondent at Octorara, Md., writing to the *Gardener's Monthly*, says:

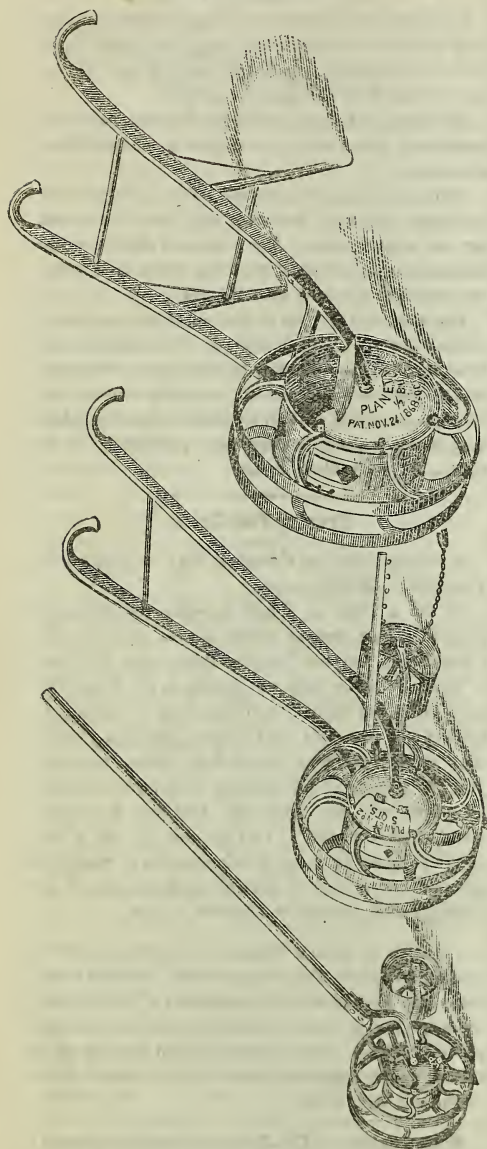
"I am a little at a loss between the advice of some to prune, and of others not to prune at all. I have some very fine Duchess Pears, now six years in bearing. They have not grown as much the two past years, as before, and the fruit is failing in quality. I was told that a good pruning, which they never have had, would help them; what say you?" [Those of our readers who have followed us closer, will, we think, not find that we recommend "not to prune." Our opinion is, that a thorough surface manuring, a thinning out of weak and inferior branches, and possibly a shortening of the stronger ones, would be a benefit to you.]

YELLOWS IN PEACH TREES.—A correspondent of the *Journal of the Farm* thus writes: "Some twenty years ago I cured several peach trees of the yellows, by applying to them a liberal dressing of railroad cinders, which were applied around the trunk as far out as the branches extended, and were dug in to the soil with a hoe."

MOON'S EFFECT.—The *Journal of Horticulture* says: The idea that trees planted while the moon is growing thrive better than if planted while it is waning, is entirely without foundation. It is on a par with the idea of producing a red peach by cracking the stone and putting in a little vermilion.

A CORRESPONDENT informs us that apples may be kept from decay by covering them with dry ashes, a method easily tried, and if found satisfactory, capable of extensive application.

THE PLANET DRILL.



The above cuts represent the Planet Drill, as recently remodelled and improved in every respect under the new patents of 1870; being at once one of the most perfect, low priced, compact and durable Drills in the market. Nos. 1 and 2 are complete for sowing Peas, Beans, Turnip, Carrot, Parsnip, Spinach, Beet, Onion, Osage Orange, Nursery Seeds, Broom Corn for Fodder, &c. No. 3 Guano, Seed and Labor saver. The best Pea and Bean Drill for field use in sowing by the bushel, and for all other seeds usually put in the furrow, as Nursery Seed, Broom Corn, &c., and Cotton if clean or rubbed in fertilizers. Thoroughly galvanized to prevent rust—holds $\frac{1}{2}$ bushel. The following ad

vantages are claimed by the patentees and manufacturers, S. L. Allen & Co., Philadelphia, for these Drills:

1st. Nos. 1 and 2 are low priced, reliable, simple, durable and efficient. It is light, compact, and cheaply freighted. 2d. There are no cogs, springs, brushes, shakers or slides, to wear and become unreliable, or cause friction. 3d. Lightness, high wheels, a broad double tread, and absence of gearing and friction make the Planet light running. 4th. The seed falls in open sight, is covered automatically and perfectly by the carrying wheels and then neatly rolled. 5th. It never cuts or injures the seed nor clogs. Buckets on the inside of the reservoir take up and discharge uniformly, regardless of the quantity in the drill, whether it is full or working with half an ounce. 6th. Light or rough seeds offer no difficulty to this drill, as they are kept in thorough and unceasing agitation until sown. 7th. The Planet has the important advantage of planting at a uniform depth regardless of an uneven surface or inattentive operator; avoiding the wearisome strain of careful holding at an exact height, so annoying in all other drills. 8th. It does not waste a foot or more of seed at the end of each row as usual, for the sower can be instantly raised clear without stopping, the seed covered and rolled to the end, and the machine wheeled into the next row. 9th. The marker leaves a plain line and can instantly be changed in width, or from side to side, or readily detached. 10th. The machine is easily adjusted to any kind or thickness of seeds, &c., by the feed guide, and quickly closed off. 11th. There is no danger of stubbing toes or of the machine falling over at every opportunity. 12th. No. 3 performs what no other drill offered, undertakes, and is a valuable farm implement. These Drills are sold by all agricultural implement dealers in this city; prices ranging from \$7 to \$16.

R. H. Allen & Co.—We have received a circular from MASON C. WELD, former editor of *The Homestead*, and for nearly ten years associate editor of the *American Agriculturist*, who has assumed the position in the above house of *Consulting Agriculturist*. He says:

I take this method to inform you that, on the first day of February, I entered the establishment of Messrs. R. H. Allen & Co., widely known as the oldest, soundest, and heaviest house in this part of the country dealing in Agricultural Implements, Seeds, Fertilizers, and Improved Live Stock. * * * The departments to which I expect to pay particular attention are COMMERCIAL FERTILIZERS, of which we keep in stock, or available, all the most valuable kinds, and only such as are believed to be *thoroughly reliable*, and IMPROVED LIVE STOCK; and it is our intention to furnish, at short notice, *thorough-bred Farm Stock* of all approved kinds, including neat Cattle, Sheep, Swine, Poultry, and Rabbits, bred under our own observation or within our knowledge.

Salts of Potash.—We would call attention to the advertisement of Charles L. Oudesluys, Baltimore, offering for sale a large lot of Prussian Agricultural Salts of Potash, which he can furnish at the lowest market price. Having received lately many enquiries as to where it could be purchased, is our object in giving this notice.

From Hovey & Co., Boston, Mass., their Illustrated Guide to the Flower and Vegetable Garden, and catalogue of seeds, containing a select assortment of the best American and European varieties, including many of their own growth. Also assortments of French and German Asters, Balsams, Stocks, &c., with all the novelties of the season. This is a beautiful catalogue, numerously embellished,

The Florist.

FLORICULTURE---FOR MARCH.

PREPARED BY JOHN FEAST, Florist, Baltimore.

The cold in February retarded work, and hotbeds and frames could not be prepared, or if prepared, could not be properly managed. As it becomes warmer it will be safe to uncover and air the plants more freely; such as are crowded in the house can be removed where they will not be endangered by frost. In-doors many of the plants will now feel the effect of the advancing season, and will be making new growth, while others will have completed their flowering and require rest. Repot and encourage the former and see that the latter do not suffer from neglect.

Pelargoniums and *Geraniums* will begin to grow and show signs of flower buds, and by the last of the month many will be in bloom; give abundance of air, and water more freely, give the plants plenty of room; turn them round so they will grow erect; fumigate and syringe on a fine day, and tie up neatly so as to give them a fine appearance.

Azaleas will now be in full bloom, give sufficient water when in flower as no plant suffers more if wanting moisture at this time; if the flowers once flag they seldom ever have the same appearance. Keep the plants free from thrip and red spider. Increase the stock by grafting, sowing the seed which are now ripe; also mark such of the finer varieties to keep up the stock. Camellias, now nearly out of flower, give frequent syringing, a good top dressing of soil and a watering of liquid water occasionally; a slight shading will benefit them as they show signs of making new wood.

Caladiums should now be started if not already done; put in small pots and keep in the warmest part of the house; be sparing of water, at the first, till signs of growth appear. *Cyclameres* done flowering, put one side, where they will not be watered too freely; as the foliage decays, they will not require the same moisture; by giving them too much at this time causes so much loss in general and when the foliage is off, lay the pots on one side, in this way they will keep till the time of repotting in latter end of summer, as they are dormant all through the summer months.

Cactuses will require more water as the season advances and they begin to grow and show flower buds; repot such as are in too small pots and have them tied up, trained to trellises or rods, to give them a fine appearance when in bloom; it is best to have this done before the buds get too large, that in moving they may not be injured.

Passifloras, *Jesmines*, *Clematisses* and all the Green-house Creepers, prune and train neatly to wire trellising or stakes; be careful and clean them from the mealy bug which infests them; put in cuttings to keep up a stock of young plants.

Lillies, *Gladiolus*, *Tuberoses*, repot some to have early bloom; be sparing of water at first till signs of growth appear, and then water more freely.—Keep near the glass if strong plants are wanted.

Dracenas, *Marantas*, and such fine ornamental stove plants will require attention; encourage

their growth, repot and divide the roots of such as have offsets; place them in the warmest part of the house; to grow them they require a moist warm atmosphere, and a little shaded. Of all plants in cultivation few are more beautiful in the house or for summer decoration out of doors, and no collection is complete without an assortment of these foliage plants of every hue and shade, where a full collection is cultivated which can be obtained at a moderate price. Ferns, another interesting tribe of plants whose varieties are numerous, some attaining to the height of 20 to 30 feet, require but little care, only a moderate moist temperature, and shaded; they are very ornamental, do well in wooden cases, which to those not having a greenhouse in winter time, derives much pleasure in taking care off; also the *Lycopodiums* and *Gymnogrammas*, more beautiful than the former, needing only the same care.

The hard wooded plants, as *Heaths*, *Epacris*, *Aca-cias*, *Chorezimas*, after they have done flowering, should be pruned to give them a proper shape, earlier the better, giving them time before another season; be careful and clean them from those pests that infest them as the scaly and mealy bug; examine every plant carefully for they soon spread over a whole collection, which not only causes an unhealthy appearance, but discredit to those in charge, as with plants like every thing, cleanliness is essential to health and if kept so, needs much less attention.

Roses that have been kept back, repot, and give a little heat to hasten their bloom; cuttings, rooted, put in small pots.

Verbenas—propagate by cutting in the older plants, cuttings put in now will make plants ready for planting out when the weather becomes fine; those struck at this season are more liable to flourish than the ones struck in the fall, which is so given to mildew, rendering them useless for flowering. When the weather is fine some attention out of doors will be wanted, such as pruning the various trees, shrubs and plants; the cleaning up, and preparing the grounds for seeds, &c.; planting and removing everything as early as possible; the walks and lawn put in proper order. Every advantage should be taken now to have such work done previous to the busy season.

FLOWER SEEDS.

Flower seeds, says Mr. Gregory, being for the most part very small in size require extra precaution in the preparation of the soil, depth of planting, and protection from extremes of cold and wet. Do not, as a rule, plant in the open ground before the weather has become settled; better wait until the middle of May. Before planting, the soil should be made very fine and be well enriched. Then seed the size of sweet peas may be planted three quarters of an inch to an inch deep, and the very smallest seed should be planted barely under the surface, having fine earth sifted over them and slightly packed with the hand or a strip of board pressed upon it. It will keep the moisture in and facilitate vegetation if a newspaper is spread over the surface after planting and kept down with stones for two or three days. Thin out the plants when very small with a bold hand, and after they have attained to the height of a couple of inches, thin again boldly. Give each plant plenty of room, according to its habit of growth; a very common mistake is to crowd too much.

AGRICULTURAL CHEMISTRY.---VII.

BY J. S. H. BARTLETT, M. D.

OF THE PROPERTIES OF MIXED EARTHS—AIR, HEAT,
AND MOISTURE.

The mixture of the earths, silica, alumina, and carbonate of lime, has the general character which results from the union of the qualities which each earth brings into the composition of the soil; but independently of the action which these principles exercise upon each other, air, heat, and moisture play their part in producing important modifications. As previously stated, the atmosphere furnishes to plants two of their constituent principles, of which one (carbonic acid) contributes to their support by the carbon which it deposits in them, while the other (oxygen) takes from them a portion of their carbon; it is also the agent by which manures and dead vegetable matter are decomposed, but the action of the air is not confined to these offices. The air may be considered as a vehicle constantly loaded with a quantity of water in vapor, of which the coolness of the night causes it to deposit a part upon the earth. The surface of the ground and the leaves of plants are often moist in the morning, the return of the sun and the heat of the day evaporates this liquid to be deposited again at sunset and during the night. Thus by an alternate movement, determined by the changes in the temperature of the atmosphere at different periods of the twenty-four hours, water is constantly applied to plants which is necessary to their existence.

In Southern climates where the heat of the sun is more intense, and the rains less frequent than in Northern, vegetation is supported by the dews which are very abundant. In order that dews and rains may produce their best effects upon vegetation, it is necessary that the soil should unite certain conditions which can only exist in the favorable mixture of the earths before spoken of.

When the soil is hard and compact, the dew, though deposited on its surface, is evaporated by the sun's rays without having moistened the roots of plants; but those soils possessing the proper proportions of silica, alumina and carbonate of lime, are so soft, light and divided, that the air conveys the moisture with which it is charged to the roots, and every part of the earth surrounding them. Besides, that condition of earth which is most easily affected by dews, yields more readily to the action of roots, whether it be in the matter of their extension, or of drawing from the soil its nutritive properties.

This is a natural explanation of the reason for working the soil between the rows of cultivated plants, whereby it is rendered light, soft, and per-

meable to the air, and rendered fit to receive the rain and transmit it to the roots, besides the advantage derived from the opening process to the air, thus permitting it to deposit the dews upon the roots and upon the earth in contact with them. The effect of this has been observed in the case of the culinary roots, when the freshness of their vegetation has become yellowish and drooping; in a few hours the leaves intensified their green color and extended themselves although no rain may have fallen.

Chaptal speaks of a custom which is universally practiced in the south of France, wherein the same object seems to be aimed at. "In that country, where it hardly ever rains during the summer, the foot of each setting of the vine is laid bare by digging around it a circular trench, deep and wide enough to contain the stump and radicles proceeding from it and the opening is speedily covered by the leaves and branches." It is evident that this method has no other advantage than that of facilitating the access of the air to the roots that it may deposit there the dews with which it is more abundantly charged than in other climates. All soils have not the same affinity for water, which arises from their different degrees of tenacity, or the division of their particles, as also from the nature of the substances which enter into their composition. The absorbing powers possessed by the elements composing a fertile soil may be arranged thus:

Vegetable substances.
Animal substances.
Alumina.
Carbonate of Lime.
Silica.

Alumina and the soils where its characteristics predominate, do not receive moisture from the atmosphere to the greatest advantage; they retain the water which they imbibe with too much force and require to be disintegrated by the action of frost or by late plowing in the fall, as also to be subdivided by the admixture of materials of an opposite nature. The light porous soils, with a proportionate quantity of decomposed animal and vegetable substances, are the best for absorbing and retaining moisture in order to transmit it with regularity and beneficial effect to the plants. The experiments conducted by Davy at the time produced results of great importance to agriculture, he compared the energy with which various soils absorb humidity from the atmosphere, and uniformly found that the most fertile ones possessed this power in the highest degree, so much so, that the fertility of soils might be estimated and classed according to it. He found that 1,000 parts of a soil celebrated for its fertility, which contained more than half its weight of finely divided matter, of which eleven parts were carbonate of lime and nine parts vegeta-

ble matter, when dried at a temperature of 212° Fabr., gained in an hour, by exposure to an atmosphere saturated with moisture at a temperature of 62°, 18 grains in weight; 1,000 parts of a very productive soil gained 16 grains. A like quantity of soil from another locality and not so good as the foregoing gained 13 grains. A soil where fine sand predominated gained 11 grains. A like quantity of soil remarkable for infertility and under the same circumstances as the above, gained only three grains, thus establishing the fact that the absorbing power of a soil will be found to be in proportion to its fertility.

Those of our readers who are interested in farming or gardening, can make experiments for themselves for testing the capacities of their soils for absorbing atmospheric moisture, and the means necessary to be employed are in the power of the cultivator. He has only to dry thoroughly a certain amount of earth taken from the surface down to the subsoil,—a tin tube of equal diameter, or a piece of ordinary gas pipe will answer the purpose—this soil to be intimately mixed before experimenting. After drying at a temperature equal to the above, 212° Fabr., he is to weigh it night and morning for several days in a suitable pair of scales, and he will be able to form an estimate of the quantity of moisture imbibed during the night. If he employs a thousand grains in his experiment he can then approximate the amendment the constitution of his soil needs, to bring it up to an absorbing power of 18 grains, the amount indicated by the most fertile soil employed in the foregoing trials.

But though the plant is furnished with aliment by the agency of air and water, it is heat alone that enables it to elaborate within itself the nourishment it receives. All soils are not equally capable of receiving and retaining heat—those of a light color are warmed with more difficulty than those of a dark color, which absorb heat as the depth of their hue increases from brown to black.

Independently of the heat which the atmosphere communicates to the soil, an additional amount is acquired by the application of manures, especially those which are employed to forward the early growth of the vegetable structure.—*Journal of Applied Chemistry*.

WHITEWASHING TRUNKS OF FRUIT TREES.—We have before now remarked, says the *Journal of Horticulture*, that we do not generally advise whitewashing the trunks of fruit trees, as it is injurious by forming a crust which excludes the air; neither do we like the looks of it. Still, when the bark of trees is found to be injured by the sun's rays, whitewashing may serve a good purpose by reflecting them, and under such circumstances we would advise its use.

CLARKE COUNTY, VIRGINIA.

The following is the reply of Col. J. W. Ware to a circular issued by Hon. Horace Capron, of the Agricultural Bureau, propounding certain questions:

TO HON. HORACE CAPRON:

Sir—Your circular received—I answer:—

I do not think "increased attention is paid to alternation with or without intervening green crops" in this county, but I think it is diminished—farming is mostly carried on here by tenants, under no particular system of rotation and no calculation of results.

2d. Labour saving machines have been introduced, but to a very limited extent—but cannot estimate the extent—I have not heard of any facts to show the profit of such substitution.

3rd. Some fertilizers have been applied, but to a very small proportion, very few have used any, and they not all satisfied and decline its further use, the rate I believe following the direction; I know of no home-made fertilizers, except barn and stable manure, which farmers here have faith in, nor in the others, though some think the fertilizers are beneficial in starting the corn, they do not generally consider fertilizers economical, nor production increased sufficiently to pay its cost. My tenant used a ton and no person could tell by the crop, where it was used. With our natural manure (from the stables) it will show improvement for years.—This is one of the finest grass and grain countries; the wheat from this region commands some cents more per bushel than from other sections, and will bear cropping in wheat years in succession without manure, and if not trampled on too much—so strong is the growth of the natural grass, that it will put up through the turnpike; I can now show instances of it on my own farm. The general opinion here is, clover and plaster is the cheapest, most enduring and best fertilizer. *My theory is*, the best use of fertilizers is to put it on young grass and rely upon its growth for improvement—for *this* land; no doubt other lands are benefited by the fertilizer, but I would not care to cultivate such lands, fearing fertilizers and taxes would bring ruin. Cover the land with grass, put on that grass plaster and ashes, in bloom, harrow down that clover in one direction—followed by the roller, let the growth for clover seed put up through it and the land will be protected from the hot sun in the severest drought; open the grass and you will find moisture if not moss there; let the grass remain, after the seed is removed, to protect it from severity of winter, then graze it, not too severely, and you would find *this* land restored and heavy crops result, and this, I think, the only way to graze and farm successfully; I write only of this kind of land.

4th. Farming animals of all kinds are increasing, but it is their *natural* increase, no particular breeds; some few Chester hogs have been brought into the county, and probably one or two short horn bulls. The truth is the close of the war left the county almost clear of all property, taken away or destroyed, except their land and all the money they could raise in any way had to be applied to restore their burnt and destroyed houses and fences.

Most respectfully,

J. W. WARE.

Berryville, Clarke County, Va., 1, 1871.

Ladies Department.

[Original.]

LITTLE BIRD SING FOR ME.

Little bird, sing for me;
Your little heart seems ever gay,
With merry song from day to day;
Have you no cares? No fear o'er fear?
Do you never sleep without a meal?
And when the storm beats o'er the plain,
Where do you hide from the pelting rain?

Little bird, sing for me;
Come to my cottage door and sing,
None shall harm you dear little thing;
And when the leaves are brown and sear,
And all the ground is cold and bare,
Come to my door, and my children will give
Crumbs from their hands that this bird may live.

Little bird, sing for me;
I love, Oh, love to hear you sing,
In winter as well as in vernal spring;
Then come from the woods, and in yonder tree
I'll place a home for your bride and thee;
And when cold snows doth mantle the ground,
You'll find at my door crumbs scattered around.

B. W. JONES.

Birds are good tenants to have upon the farm. They work for nothing and board themselves. Don't kill the little creatures, their presence make more cheerful our homes.

SORTS OF WOMEN.

There are two kinds of gentlemen's favorites—the bright women who amuse them, and the sympathetic ones who love them. But these last are of a doubtful—what country people call “chancy” kind—women who show their feelings too openly, who fall into love too seriously, on perhaps unasked altogether, being more likely to irritate and disgust than to charm. But the bright, animated women, who know how to talk and do not preach, who say innocent things in an audacious way, and audacious things in an innocent way, who are clever without pedantry, frank without imprudence, quick to follow a lead when shown them, and who know the difference between badinage and earnestness, flirting and serious intentions—these are the women liked by men, and whose social success in no wise depends on their beauty.

A gentleman's favorite of the right sort must, among other things, be well up in the accident of flirting, and know how to take it at exactly its proper value. She must be able to accept broad compliments, or more subtle love-making, without either too serious an acceptance or too grave a depreciation. This is a great art, and one that more than any other, puts men at their ease, and sets the machinery of pleasant intercourse in harmonious action. Never to show whether she is really hit or not; never to give a fop occasion for a boast, or an empty room for a pitying sneer; to take everything in good part, and to be as quick in giving as in receiving; to never be off her guard, never to throw away her arms, and to conceal any number of foxes that may be gnawing at her beneath her cloak—this kind of flirting, in which most gentlemen's favorites are adepts, is an art that reaches almost the dimension of a science.

And it is just that in which your very intense, your very earnest and sincere women are utter failures. They know nothing of badinage, but take everything *au grand sérieux*; and when you mean simply playful and complimentary, imagine you in tragic earnest, and think themselves obliged to frown down a compliment as a liberty, or else they accept

it with a passionate pleasure that shows how deeply it has struck. These intense and very sincere women are not, as a rule, gentlemen's favorites, unless they have other qualities of such a pleasant and seductive kind, as to excuse the enormous blunder they make of wearing their hearts on their sleeves for drawing-room daws to peck at, and the still greater blunder of confounding love-making with love. They may be, and if they have nice manners and good tempered they probably are, of the race of popular women; that is, liked by both men and women; but they are not gentlemen's favorites *par excellence*, who, moreover, are never liked by women at all.

Women are quite right in one thing, hard as it seems to say it. Gentlemen's favorites, whom women dislike and distrust, are not usually good for much morally. They are often false and insincere, superficial, and possibly with a very low aim in life. And the men know all this, but forgive it for the sake of pleasantness which is the grace and charm that shadows, or rather brightens, all the rest; having oftentimes, indeed, a half contemptuous tolerance of their aids, as not expecting anything better from them. Grant that they are false, that they sail perilously near the wind, and shifty and untrustworthy, what of that? They are not favorites because of their good qualities, only because of their pleasant ones—that subtle *je ne sais quoi* of old writers which stand one in such good stead when one is at loss for an analysis, and which is the only term that expresses the strong yet indefinite charm which certain women possess for men.

It is not beauty; it is not necessarily cleverness, taken in the sense of education though it must be a keenness, if not depth of intellect, and smartness, if not the power of reasoning; it certainly is not goodness; it is not always youth, nor yet warmth of feeling—though all these things come in as characteristics in their turn; but it is companionship, and the power of amusing. Still, what is it that creates this power, this companionship? A smart, pert, flippant little mink, as women call her, with a shrill voice and a saucy air, may be the gentlemen's favorite of one set; a refined, graceful woman, speaking softly, and with pleasing eyes, may be a favorite of another; the third may be a blunt, off-handed young person given to speaking her mind so that there shall be no mistake; a fourth may be a silent and seemingly a shy woman, fond of sitting out in retired places, and with a reputation of flirting of a quiet kind that sets the women's fingers tingling.

There is no settled rule, however, and all kinds have their special sphere of shining, according to circumstances. But whatever they may be, they are useful in their generation, and valuable for such work as they have to do. Society is a miserably dull affair to men where there are no favorites of any sort; where the womanhood in the room is of the kind that herds together as if for protection, and looks askance over his shoulder at the wolves who prowl about the sheep fold of crinoline, in coats and beards; where conversation is monosyllabic in form, and restricted in substance; where pleasant men who talk are considered dangerous, and fascinating women who answer, immoral; where the matrons are grim, and maidens still in the bread-and-butter stage of existence; and where young wives take matrimonial fidelity to mean making themselves disagreeable to every man but their husbands, on the plea that one never knows what may happen, and that you cannot go on with what you never begin.

LOVE FOR TREES.—We love trees. They seem like things of life. They stand like sentinels while we sleep, and whisper to us through the day. It seems as though they were our kindred, and we hold converse with them as we watch their swaying branches through the long summer days.

CAREFUL AND KIND.

Pray, be gentle, little sister!
Softly touch those painted wings,
Butterflies and moths, remember,
Are such very tender things!

Carefully, my pretty wee one,
Press the sheltering twigs aside,
Just to view the naked nestlings
Safely sleeping side by side.

Gently stroke the playful kitten;
Kindly pat the patient dog;
Let your unmolested mercy
Spare the worm, the snake, the frog!

Wide is God's great world around us;
Room enough for all to live;
Mar no creature's brief enjoyment,
Take not what you cannot give.

Ever let your heart be tender,
For the mute and helpless plead;
Pitying leads to prompt relieving,
Kindly thought to kindly deed.

S. H. BROWN.

UNHAPPY MARRIAGES.

The universal expectation of married people is that their married lives will always be happy ones. Deluded dreamers! They imagine that they are different from other people, and that when they enter the portal of matrimony, love, peace and prosperity will ever be their attendants. Such ones had better by far consider themselves the same as others, but form iron resolutions to do differently from other married people—resolutions that will keep them from the dangerous coasts on which so many have been wrecked and ruined. Unhappy marriages depend upon many causes. Previous to marriage, many try to appear more intellectual, more amiable, or more accommodating than they really are. Depend upon it, that love brought into existence by a moonlight stroll, strengthened by deceit and fashionable displays, and finally consummated through the influences of intriguing friends, will fade in after life almost as fast as the flowers which compose the bridal-wreath.—*Woodhull and Claflin's Weekly.*

NOSEGAYS.

Flowers should not be cut during sunshine, or kept exposed to the solar influence, neither should they be collected in large bundles and tied tightly together, as this invariably hastens their decay. When in the room in which they are to remain, the ends of the stalks should be cut clean across with a very sharp knife (never with scissors), by which means the tubes through which they draw the water are left open, so that the water ascends freely, which it will not do if the tubes of the stems are bruised or lacerated. An endless variety of ornamental vessels are used for the reception of such flowers, and they are all equally well adapted for the purpose, so that the stalks are inserted in pure water. This water ought to be changed every day, or once in two days at the furthest, and a thin slice should be cleanly cut off from the end of each stalk every time the water is removed, which will revive the flowers

The bursting buds look up
To greet the sunlight while it lingers yet
On the warm hill side, and the violet
Opens its azure cup
Meekly, and countless wild flowers wake to fling
Their earliest incense on the gale of Spring.

DOMESTIC RECIPES.

TO BONE FOWLS FOR FRICASSEES, CURRIES, AND PIES.
—First carve them entirely into joints, then remove the bones, beginning with the legs and wings, at the head of the largest bone; hold this with the fingers, and work the knife carefully all round it. The remainder of the birds is too easily done to require any instructions.

TO BAKE A FOWL.—Prepare a fowl as for roasting; have the oven of good but not a raging heat. Lay the fowl on skewers; baste every five minutes, and manage the same as the roast. If young, it will bake in one hour.

TO ROAST A TURKEY.—Proceed as directed in roast fowl; allow from two and a half to three hours for a good-sized tender turkey. The dressings of fowls can be varied by using oysters, etc.

TO BAKE A TURKEY.—Follow the directions for baking fowls, and allow from two to two and a half hours steady baking for a common-sized young turkey; serve with a browned gravy. All roast fowls should be served with dressed vegetables, currant, grape, or cranberry jelly, and a baked pudding or pie.

WHITE FRICASSEE.—Boil a chicken; joint it; lay it in a saucepan with a piece of butter the size of an egg, a table-spoonful of flour, a little mace or nutmeg, white pepper, and salt. Add a pint of cream, and let it boil up once. Serve hot on toast.

TO BOIL A GOOSE.—After it is well dressed, singe it thoroughly. Have ready a dressing prepared of bread crumbs, seasoned with pepper, salt and butter, with the addition of two finely-chopped onions, a little sage, and more pepper than would be used for turkey. Fill the body and close it firmly; put it in cold water, and boil it gently an hour, if tender; if not longer; serve with giblet sauce. The onion can be omitted if not relished.

PARTRIDGE PIE.—Two braces of partridges are required to make a handsome pie; truss them as for boiling; pound in a mortar the livers of the birds, a quarter of a pound of fat bacon, and some shred parsley; lay part of this forcemeat at the bottom of a raised crust put in the partridges, add the remainder of the forcemeat and a few mushrooms; put some slices of bacon fat on the top, cover with a lid of crust, and bake it for two hours and a half. Before serving the pie remove the lid, take out the bacon, and add sufficient rich gravy and orange juice. Partridge pie may also be made in a dish in the ordinary way.

BAKED POTATOES.—Potatoes are either baked in their jackets or peeled; in either case they should not be exposed to a fierce heat, which is wasteful, inasmuch as thereby a great deal of the vegetable is scorched and rendered uneatable. They should be frequently turned while being baked, and kept from touching each other in the oven or dish. When done in their skins be particular to wash and brush them before baking them. If convenient, they may be baked in wood ashes, or in a Dutch oven in front of the fire; serve them in damask napkin. When pared they should be baked in a dish, and fat of some kind added to prevent their outsides from becoming burnt; they are ordinarily baked thus as an accessory to baked meat.

POTATO PONE.—This is a favorite dish in the West India Islands. Wash, peel, and grate two pounds of potatoes, add four ounces each of sugar and butter (or beef dripping), melted, one teaspoonful each of salt and pepper, mix well together, place it in a baking dish, and put it into a brisk oven until it is done and becomes nicely browned.

THE SPRAGUE MOWER.

This Mower was introduced in the harvest of 1870, and seems from all accounts to have been a perfect success, as is evidenced from the numerous testimonials from gentlemen who have used it; among whom was Mr. Thomas Lansdale, of Triadelphia, Md., well known in our State, who, in writing to a friend says of it: "My favorable impression and judgment of the qualities of the machine on first sight, were more than fully realized by ample experience. I consider it in plan, mechanical construction and durability, far ahead of any other mower in the market; is much less in price, and in every way safe to purchase and recommend."

The following is a description of the machine, as well as its advantages, as set forth in the circular of the Sprague Mowing Machine Company, Providence, R. I., of which Senator Sprague is President:

"The frame is an iron case in which all the gears are placed, and entirely covered. The shafting is all held by the frame, and as it is a simple piece, there can be no warping and springing, as where the frame is of wood, or pieces of iron. The shafting once in line, must always be in line, thus securing easy draft throughout the whole life of the machine. Only four bolts are used to hold cover, caps, seat, shafting, gears and frame. No dust, dirt or grass can reach the gears, and the driver cannot possibly be injured by them. Almost the entire weight of the machine is carried upon the wheels, giving large driving power in proportion to whole weight. The machine is one of the strongest, and also one of the lightest in use, weighing only 600 lbs. The Sprague has the central lifting draft, lessening the work of the team, and the liability to strain when striking obstructions. The lifting apparatus is the most complete in use, with the lever *only* the bar is brought to a perpendicular position and fastened, and with the lever it is unfastened and lowered, and the driver, not leaving his seat, can do all this in ten seconds. The cutting apparatus is regarded as the most perfect in the world, no pains or expense having been spared in its construction. The tool box and seat are combined, the box forming the base, and the seat the cover, combining the symmetrical and useful. The gear shifting lever is worked by the foot, leaving the hands at liberty for driving. The Sprague Mower is pre-eminently the Light Draft Machine. The reasons are, that its Gears are so carefully arranged and so entirely protected from dirt and dust that they work without the usual friction, and the unrivalled cutting apparatus is so perfect in its construction, and so harmonious in its connection with the gearing, as to require the smallest possible amount of power to cut the grass."

See illustration on page opposite.

Old and New.—The February No. of the peoples' magazine, edited by Edward E. Hale, continues to commend itself as a standard periodical, and deserves an extensive patronage. Boston, Roberts Brothers.—Subscription \$4 per annum.

The Galaxy.—An illustrated magazine. The March number fully sustains its reputation for excellence. New York, Sheldon & Co., publishers.—Price \$4 per year.

The Prairie Farmer Annual for 1871.—This annual is well stored with useful information to the farmer. Published by the *Prairie Farmer Company*, Chicago, Illinois, at 50 cents a copy.

The Little Corporal for February is a superb number and should be in every household. Sewell & Miller, Chicago, Illinois. \$1.50 a year.

Burke's Magazine for Boys and Girls.—The first number of this monthly is received and its contents will be found highly interesting. Published by G. J. W. Burke & Co., Macon, Ga.—\$2 a year.

USEFUL RECIPES.

CURE FOR FISTULA BEFORE IT BREAKS.—A correspondent of the *Farmer* sends us the following:

12 ozs. Alcohol; 1 oz. Spirits Turpentine; 1 oz. Corrosive Sublimate; 1 oz. Camphor Gum; 1 oz. Oil of Spike; 1 oz. Castile Soap; 1 oz. Aqua Fortis. Well mixed and dissolved in a bottle. Apply once or twice a day, as the judgment may dictate. Halter the horse securely.

The following are from the *American Stock Journal*:

LEAKING MILK.—For a cow that leaks her milk badly, place a little elastic gum ring around each teat. You can cut a set out of an old cast-away rubber shoe—cost nothing—no harm to the cow, and will save in a season several dollars worth of milk.

SORE THROAT AND COUGH IN PIGS.—Give a gill of melted hog's lard, and turn him out of the pen to get fresh dirt, and in one hour he will be better, and get well.

ASTRINGENT DRINK FOR LAMBS.—Take compound chalk powder with opium, a drachm; gentian, a scruple; essence of peppermint, three drops. Mix with a little thin starch, and give morning and night.

CURE FOR HOG CHOLERA.—Succeed well in curing this disease, by giving the hogs a plentiful supply of soap in their corn.

TO PREVENT CALVES FROM SUCKING.—Take an iron rod, a small one, of sufficient length, bent at the middle to fit the under jaw; it is then made to form a ring at each side of the mouth; the ends, sharpened, reach forward five inches; a rope or strap goes from ring to ring over the head; another from ring to ring over and across the nose; beat the rod into itself where it crosses to form the rings. This is the contrivance, simple, durable, and cheap.

FISTULA IN HORSES.—Take a pair of shears and clip off the hair on the affected place before it breaks, and rub it three times with iodine, and I will insure it to cure in a very short time.

CRAMP IN HORSES.—Cramp arises from irregular action of the motor nerves. Rubbing the affected parts with a wisp of hay for ten minutes would be beneficial, and should friction alone not remove the tendency to cramp, the parts affected should be rubbed occasionally with a solution of camphor and olive oil, in the proportion of one part of camphor to four of olive oil.

MUSTY AND RUSTY STRAW.—Feeding rusty straw to cattle and horses has a very injurious effect upon their health and efficiency. The class of diseases induced by this ailment are marasmus, glanders, farcy, skin disease, catarrhal affections, and watery swellings of the body and legs.

TO STOP HORSES FROM KICKING.—Tie a knot in the end of the tail, above which tie a cord; then pass a cord between the thighs and around the girth or belly, and draw the tail down between the thighs and fasten the cord securely. We have known this to succeed, when everything else ever heard of had failed.

BARREN RAMS.—High feeding will occasionally cause barrenness; but when this has been the entire cause, they will often be fruitful again after a season of natural treatment. We had a ram last year, which proved himself a good stock-getter then; the year before he was bought for \$100 in gold, but got no lambs that season, though it was on the same farm, and many of them the same ewes that were with him.

TO CURE SCRATCHES.—A correspondent sends the following cure for scratches in horses to the *Western Rural*:

Take sulphur and soft soap, equal parts, mix well together, and rub the sores once a day. Three applications generally are sufficient; but cases may require more. It is a sure cure.

THE SPRAGUE MOWER.

SEE PAGE 94.



SOLUTIONS TO THE PROBLEM FOR YOUNG MEN.

The following solutions to the problem for young men, on page 34 of February number, have been received:

"I send you the following solution: He brings 14 apples, gives the father half, or 7, which leaves 7, gives the mother half of these and half an apple over, 4, remainder 3, gives the daughter half of these and half an apple over, 2, which of course leaves one for himself. VIRGINIA.

HICKORY, Miss., Feb'y 12, 1871.

I have solved your "problem for young men." The answer is:—7 for the old man; 4 for the mother; 2 for the daughter, and one for the young man—in all 14. I would be glad if you would send other problems not as easily solved as this. Respectfully, yours, Wm. A. RAINES.

Edgar Howard Randall, of Garrisonville, Stafford county, Virginia, sends a very ingenious solution to the problem worked by Algebra, resulting precisely the same as the above.

Another *youthful* correspondent, at Easton, Md., sends his solution—"and demands his daughter in marriage"—says there were 14 apples in all.

PROBLEMS TO SOLVE.

E. H. Randall, of Virginia, sends the following for solution:

I put \$100 out on interest for four years, the per cent unknown to me; at the termination of the four years the man to whom I loaned the money handed me the \$100 without the interest for the time mentioned, and said if you wish to know the per cent. that I allowed, multiply $\frac{2}{3}$ of $\frac{1}{4}$ of the interest by 4, and you will have the No. 32.—What is the per cent?

Home, of Easton, Md., sends the following for solution: I have three daughters, I give the first 50 dozen eggs, to the second I give 30 dozen, and the third I give 10 dozen, tell them to take them to market; they are all to sell at the same price, and have exactly the same amount of money, no more nor less, and to sell all each had.

Cheering Facts for the Bilious.

Every day demonstrates more clearly that liver complaint, in all it distressing forms, can be controlled and cured without difficulty or inconvenience. It is an obstinate disease, but its obstinacy is not proof against the pertinacious, remedial and restorative operation of Hostetter's Stomach Bitters. That genial corrective *compels the organ to do its duty*. It must secrete regularly and healthfully under the influence of the Bitters. Their action brings it back from a state of rebellion into perfect harmony with the laws of health. If there is costiveness, it disappears; if there is side-ache or back-ache, it ceases; if the skin and the whites of the eyes are tinged with superfluous bile, they recover their natural hue; if the appetite is gone, it returns; if the digestion is impaired, it is restored; in brief, whatever the symptoms of the complaint may be, and whatever the phase it has assumed, *a cure is certain*. Such are the uniform effects of this preparation where bilious disease has been already developed; but in cases where there is merely a constitutional tendency to liver complaint, it may be prevented throughout life by the regular use, in small quantities, of this palatable antidote. These are proven facts, and should be seriously pondered—or, rather, they should be promptly acted upon—by all persons of bilious habit.

A profuse and many times excessively offensive discharge from the nose, with "stopping up" of the nose at times, impairment of the sense of smell and taste, watering or weak eyes, impaired hearing, irregular appetite, occasional nausea, pressure and pain over the eyes, and at times in the back of the head, occasional chilly sensations, cold feet, and a feeling of lassitude and debility are symptoms which are common to catarrh, yet all of them are not present in every case. Dr. Sage's Catarrh Remedy cures catarrh in its worst form and stages. It is pleasant to use, and contains no poisonous or caustic drugs.

Sent by mail on receipt of sixty cents. Address R. V. Pierce, M. D., Buffalo, N. Y. Sold by druggists.

The Gardener's Monthly for February, edited by Thos. Meehan. Brinkloe & Marot, Publishers, 23 North Sixth Street, Philadelphia. \$2.00 a year. The contents of this valuable Horticultural Magazine are: Chromo Colored Plate of Bouvardia Vreelandii—Hints for Flower and Fruit Garden and Greenhouse—Communications:—A Flower Show in the Year 1830. By W. T. Harding, Philadelphia—Remarks on the Daphne Cnerum. By Mr. Antoine Winter, West Grove, Pa.—On the Raising of New Varieties of Potatoes from the Seed-Ball. By Mr. George Such, South Amboy, N. J.—Evergreens for Winter. By Walter Elder, Philadelphia.—Discovery of Ancient Bones at Waukegan, Ills. By Mr. R. Douglass—Well Ripened Tomatoes: R. L. B., Philadelphia—Bud Variations. By Mr. Charles Arnold, Paris, Ontario, Canada—New Foreign Grapes. By Mr. James Taplin, South Amboy, N. J.—Fungi and its Structure. By Mr. Josiah Hoopes, West Chester, Pa.—Editorials:—Travelling Recollections—Bouvardia Vreelandii—Hot Water Boilers. With a large variety of news items both Foreign and Domestic.

The Milling Journal and Corn Exchange Review, a semi-monthly journal devoted to the interests of Mill-owners, Millers, Millwrights, and the flour and grain trade generally, is now entering on its third Volume. The journal is well filled with useful articles relating to milling. We notice amongst the articles of the present number, Methods of Bread-Raising, History of Mills in America, Flour Mills in New York and vicinity, Review of the American Grain trade, a new Millstone dress and several articles on balancing Millstones, Water Wheels &c. Terms, \$2.00 per year. J. D. Nolan & Co., publishers, N. Y.

Small Fruits.—John Cook, of Carroll, Baltimore county, offers for sale a large variety of small fruits, asparagus, &c. Send for price list.

CATALOGUES, &C., RECEIVED.

From Ellwanger & Barry, Mount Hope Nurseries, Rochester, New York, their latest edition of their Plant catalogue. The Mount Hope Nurseries are among the oldest in the country, and the Proprietors are too well and favorably known to require an introduction to our readers.

From James J. H. Gregory, Marblehead, Mass., annual catalogue of choice vegetable and flower seeds. Their nurseries are well known to our readers. The catalogue is very full and complete, which will be sent free to all.

From J. F. Mendenhall, Carmel, Indiana, his Illustrated Catalogue of Seeds and Guide for the Flower and Vegetable Garden, containing accurate descriptions of about five hundred varieties of the choicest flowers and vegetable seeds, with directions for sowing, &c.

From R. H. Allen & Co., New York, their retail priced catalogue of Field and Garden Seeds and Grains for 1871. The catalogue comprehends every variety of seeds and is beautifully illustrated.

From E. Ware Sylvester, catalogue of Lyons Nurseries, Lyons, New York. Apple, pear, peach, plum, cherry and other fruit trees,—also every variety of small fruit. He also makes the celebrated Oporto wine.

From B. C. Stanley, Damascoville, Ohio, price list of Osage hedge plants and small fruits.

Spavin and Ring Bone Ointment.—In the advertisement of Breinig, Frosfield & Co.'s vegetable bottle Powder, on 4th page, 9th line from bottom—instead of reading Price \$1.50 per box—it should be \$2.50.

Written for the *Banner of the South and Planters' Journal*, published at Augusta, Ga., Nov. 26, 1870.

AN EXPERIMENT WITH EIGHT DIFFERENT KINDS OF FERTILIZERS.

BY GEORGE C. DIXON, CAMERON, GA.

There are now in the market for sale about forty different kinds of Fertilizers. Each of these are supported by a long list of certificates from various planters, who testify that they have used them—some one and some another—but all bear witness to good results. No proprietor or agent is without his list of certificates to show that his particular Fertilizer is as good, if not better, than any other. Now, how are planters to know which is the best? Notwithstanding these long lists of certificates, we find some farmers, yea, too many, who find that by practical application, after giving them a fair trial, prove them to be worthless fertilizers (or so-called fertilizers) and come out in debt and denounce all guanos.

Now, if farmers would put themselves to a little trouble we can soon find out the standard or best fertilizers, but to ascertain this we should try different kinds of fertilizers, side by side, and *publish the results of these tests, giving to the farming community the method of application, mode of culture, and the character of the land planted*. Even if but one kind is used the result should be made public. Such a policy will enable the farmer to gain information, not only as to the best and most reliable fertilizer applicable to the different soils, but of the best method of application. If any particular fertilizer proves worthless, *publish it*, but state at the same time the character of the land and the methods of application and cultivation. By so doing, farmers will be able to judge as between the Fertilizer and the experimenter; and thus be enabled to decide between the various kinds of fertilizers; and what is more, to determine whether the manufacturer or manipulator is deteriorating his products by adulteration, to reap fraudulently a rich harvest of wealth, or is perfecting his manufacture year by year.

This year I have tried seven different kinds of fertilizers, side by side, viz:

1. Bradley's Super-Phosphate of Lime.
2. Whann's Raw Bone Super-Phosphate.
3. Wilcox, Gibbs & Co.'s Manipulated Super-Phosphate of Lime.
4. Patapsco Guano.
5. My own Compound.
6. Soluble Pacific Guano.
7. Mapes' Super-Phosphate of Lime.

The land was a very poor old field, clay near the surface. It was planted in cotton last year, but

"lay out" the year before. The rows were three feet three inches apart. I did not break the land "flush," but ran furrows between the old rows, with an eight inch shovel plow, made with two wings in order to leave the furrow well open. This shovel plow ran twice in the same furrow. Then I drilled the Guano in this furrow at the rate of 320 pounds to the acre, ran a No. 10 cast-iron plow (Yankee) about eight inches deep on each side, covering the Guano. This left a ridge on the old bed where the old cotton stalks stood, about 7 or 8 inches wide, which I "burst out" by running my two-winged shovel plow very deep. The land was planted April 10th and cultivated with the sweep-plow and hoe. The rows of this experimental field were one acre, or seventy yards long.

The following is the result. I picked from—

Row manured with Whann's Raw Bone Super-Phosphate 12 $\frac{3}{4}$ pounds.

Row manured with Patapsco Guano 9 $\frac{1}{2}$ pounds.

Row manured with my own compound 9 $\frac{1}{2}$ pounds.

Row manured with Soluble Pacific 9 $\frac{1}{2}$ pounds.

Row manured with Bradley's Super-Phosphate, 9 pounds.

Row manured with Wilcox, Gibbs & Co.'s Manipulated 9 pounds.

Row manured with Mapes's Super-Phosphate 6 $\frac{1}{2}$ pounds.

Row unmanured in any manner 2 $\frac{1}{2}$ pounds.

As before stated, the land was very poor as will be inferred by the yield of the unmanured row—2 $\frac{1}{2}$ pounds. As the rows were three feet three inches apart, there would be sixty-four rows to the acre. Now, as Whann's Raw Bone Super-Phosphate stands ahead in this experiment, let us make a calculation as to whether or not it would pay, and if it would pay, how much?

One row manured with Whann's Raw Bone Super-Phosphate gave a yield of 12 $\frac{3}{4}$ pounds. This multiplied by 64 (the number of rows to the acre, at the distance taken) gives 816 pounds per acre. The row without guano made 2 $\frac{1}{2}$ pounds, which, multiplied as before by 64, gives 144 pounds per acre. Deducting 144 from 816 leaves 672 pounds, as the net gain by the use of Whann's Raw Bone Super-Phosphate. This 672 pounds of seed cotton will make at least 200 pounds of lint, which at 15 cents per pound, will give thirty (30) dollars.—This sum is the gain per acre of an acre manured with Whann's Raw Bone Super-Phosphate over and above that which an unmanured acre would yield. But we must pay for the guano out of this \$30. The cost of this (including hauling, &c.,) was \$12.80; deducting this sum from \$30 leaves \$17.20, as the clear profit—the return for the use of Whann's Raw Bone Super-Phosphate.

But it must be borne in mind that we had 672 pounds of seed cotton after deducting the amount made upon the unmanured acre; and in reducing it to lint we threw off 472 pounds for the weight of seed. This will give us at least $18\frac{3}{4}$ bushels of cotton seed, which, at 20 cents per bushel, will give us the further sum of \$3.70. Adding this to the above sum of \$17.20 gives \$20.90 as the whole gained per acre by the use of Raw Bone Super-Phosphate. Besides this we may expect some gain in the crop of the succeeding year.

I will not be at the trouble now of making a like calculation as to all the different Fertilizers used in my experimental patch, as any one may do it as I have given the yield of the different kinds, the amount of yield without the use of fertilizers, and the number of acres to the row.

I feel confident that the Mapes repaid me, notwithstanding that it gave the smallest yield, and I consider it the poorest of the seven different fertilizers used. My motto is: Try all things; hold fast to that which is good. I used nothing but Whann's Raw Bone Super-Phosphate (I mean of commercial fertilizers) in my general crop this season: and I am so well pleased that I shall use it more freely in future. But at the same time *I expect to raise all the manure on my farm, and would recommend every farmer to do likewise.*

I used Whann's Raw Bone Super-Phosphate in different quantities per acre, and I found that where the largest quantity was applied, the result was most satisfactory—it paid the best. †

PREPARATION OF TOBACCO BEDS.

The following suggestions on making Tobacco Beds we copy from a correspondent of the *Annapolis Advertiser*.

CROWNSVILLE, A. A. Co., Jan. 18th, 1871.

Now that the time has arrived for the commencement of another crop, I propose to lay before your readers a few practical hints in reference to the first work which usually engages the farmer's attention in this locality, viz.: the preparation and sowing of tobacco-beds. This is one of the most important of all the operations connected with the raising of tobacco and upon its proper performance depends the success of the crop. Without an early and abundant supply of plants no one can expect to be successful. It will not do to rely on your neighbor, for no farmer ever thinks of giving plants away until he has finished planting himself and by that time the season has well nigh passed. A piece of ground in the woods, with a southern exposure should be selected in order that the full benefit of the sun's rays may be obtained. The earlier germination of the seed and protection from the frost is thus secured. The soil should be loamy and contain a good

proportion of vegetable mould. It should also be as free as possible from grass, and in order to avoid this it is better to select a spot well covered with leaves. The ground should be tolerably dry before beginning the work otherwise it will not pulverize sufficiently and will be sure to bake and become hard.

The wood and undergrowth having been cut and cleared away, the leaves and litter should be raked and burned. If there is a plenty of seasoned brush at hand this should now be layed upon the ground in pretty thick layers and also burned. Some dispense with burning the bed altogether, but we believe that it will repay the trouble, provided the brush is convenient. The destruction of the germs of grass seed and the valuable addition of the potash contained in the ashes are the two important points obtained by this procedure. The ground should now be dug up to the depth of two or three inches (deep digging is objectionable on account of mixing too much of the poor subsoil with the surface mould) and chopped fine. All roots should be taken off and the ground well raked down. About a half bushel of Peruvian Guano to each 400 sq. yards should be sown on the surface, and if the ground is not very fertile two or three ox-cart loads of well rotted manure should be added and the whole chopped in. The bed is now ready for seeding. The quantity of seed depends upon the time of sowing and the quality of the ground. If sown early, or in very sandy soil, more seed are required. Usually a half gill of seed to each 400 square yards will be sufficient. They should be mixed with ashes or plaster and well stirred to insure an even distribution, otherwise they will come up in bunches. After sowing they should be lightly raked in and the bed trodden down by foot, or what is still better, rolled down smoothly with a hand-roller. It should now be lightly covered with pine brush to protect the young plants from frost and a ditch made at the upper side of the bed, if on an inclination, to prevent the water from washing over it. If stock are running at large in the same field it should also be well fenced in. By following the above directions an early and abundant supply of plants may be calculated on, provided they escape the ravages of the fly.

FARMER.

Rain-water Cistern.

There is no better filter for a rain-water cistern than a wall of soft-burned bricks built up within it. I have one twenty inches square in the center of my cistern, from which the pump draws. It may be built in one corner as well. The water percolates through the substance of the bricks, which detain every impurity, except such as are chemically united with the water.

BALTIMORE MARKETS---March 1.

Prepared for the "Maryland Farmer" by GILLMORE & SON, Produce Commission Merchants, 194 W. Pratt st.

[Unless when otherwise specified the prices are wholesale.]

ASHES.—Pot quiet at \$6.75@7.25
 APPLES.—Firm; \$4.75@5.00 ¢ barrel.
 BEESWAX.—28@30 cts. per lb.
 BROOM CORN.—5@6 cts. ¢ lb
 BUTTER.—Stock of packed increasing; shippers taking only choice lots at 28 to 30 cts. Roll is in good supply with light demand; the season for it will soon be over. Choice Yellow sells at 30, and Prime at 25; Good 20; lower grades 15@18 cts. Made over butter only commands grease prices; it will not sell in this market.
 COTTON.—Market dull, we quote:

	Upland.	Mobile.
Ordinary.....	12 cents	12½ cents
Good ordinary.....	13¼	13½
Low middling.....	14¼	14½
Middling.....	15	15½

COFFEE.—Prices firm, supply light. Ordinary to Prime Rio, from jobbers, range from 14 to 17 cts. Gold duty paid.

DRIED FRUITS.—Dried Fruits of every description scarce. Apples, prime, sliced, per lb, 7 cts; ditto, quarters, 5 cts. Peaches, prime, peeled 20 cts; unpeeled halves, 13 cts; unpeeled quarters, 10 cts. Cherries, prime, pitted, 18 cts. Blackberries, prime, 12 cts.

EGGS.—Receipts increasing; prices declining, fresh country, 25 to 26 cents per doz. We recommend our shippers to send their Eggs in "Steven's Patent Egg Carriers," a convenient package to lift, requires no counting, holds just thirty dozen, and if carefully filled and handled, cause no loss from breakage—these Carriers are sold at the low price of one dollar—we have arrangements with Adam's Express to take back empty packages free of charge; also with the Empire Line and Baltimore & Ohio R. R. to take them back at first-class rates.

FERTILIZERS.—No change to note. We quote:
 Peruvian Guano—gold..... \$68 ¢ ton of 2000 lbs.
 Orchilla and Rodonda..... 30 ¢ ton "
 Turner's Excelsior..... 60 ¢ ton "
 Turner's Ammo. S. Phos..... 50 ¢ ton "
 E. F. Coe's Ammo. S. Phos..... 55 ¢ ton "
 Ober's Phospho-Peruvian Guano 65 ¢ ton "
 Ober's Super-Phosphate of Lime.. 55 ¢ ton "
 Soluble Pacific Guano..... 60 ¢ ton "
 Patapasco Guano..... 60 ¢ ton "
 Flour of Bone..... 60 ¢ ton "
 Andrew Coe's Super-phosphate.. 52 ¢ ton "
 Baugh's Raw Bone S. Phos..... 50 ¢ ton "
 Excellenza Cotton Fertilizer..... 56 ¢ ton "
 Excellenza Soluble Phosphate.. 56 ¢ ton "
 Excellenza Tobacco Fertilizer... 60 ¢ ton "
 Meat and Bone Guano..... 40 ¢ ton "
 Magnum Bonum Soluble Phos.... 52 ¢ ton "
 Ruth's "Challenge" Sol. Phos... 60 ¢ ton "
 Zell's Raw Bone Phosphate..... 56 ¢ ton "
 Rhodes' do..... 50 ¢ ton "
 Mapes' do..... 60 ¢ ton "
 Bone Dust..... 45 ¢ ton "
 Horner's Bone Dust..... 45 ¢ ton "
 Dissolved Bones..... 60 ¢ ton "
 Baynes' Fertilizer..... 40 ¢ ton "
 "A A" Mexican Guano..... 30 ¢ ton "
 "A" do. do..... 30 ¢ ton "
 Moro Phillips' Super-Phosphate.. 56 ¢ ton "
 Whann's Raw Bone Super Phos.. 56 ¢ ton "
 Md. Fertilizing & Manufacturing Co's Ammoniated Super-Phosphate..... 55 ¢ ton "
 Fine Ground Bone Phosphates } 30 ¢ ton "
 Plaster..... \$2.25 ¢ bbl.

FLOUR.—Market steady, with firm prices.

City Mills Super.....	6.75	@	7.25
" Extra.....	1.00	@	8.00
" Family.....			\$11.09
Howard Street Super.....	5.50	@	6.00
" Extra.....	6.25	@	6.75
" Family.....	7.50	@	8.50
Western Super.....	5.50	@	6.00
" Extra.....	6.25	@	6.75
" Family.....	7.00	@	8.50

GRAIN.—Wheat, active and firm; prices average from \$1.60 to \$1.90 for red, and \$1.70 to \$2.00 for white. Corn, receipts light—yellow, 78 to 80 cts; white, 83 to 84 cts. Oats, fine at 58 to 60 cts. Rye, 95 to \$1.00 per bu.

MILL FEED.—Active; Brownstuff 21@23 cts.; Light Middlings 28@30 cts. and heavy 40@50 cts.

MOLASSES.—New Orleans is in market at 65@75 cts. ¢ gal.; Porto Rico and English Islands 30@45 cts.; Muscavados 22@30 cts. and Cuba clayed 21@23 cts.

PROVISIONS.—Dull. Fine sugar cured hams 17½@18 cts.; Shoulders 10½@11 cts. and Sides 12½@13 cts.

POTATOES.—Early Rose, per barrel, \$7.00; Peach Blows, \$4.50; Dykeman, \$4.50.

POULTRY.—Out of season. Live chickens, \$5.00 to \$6.00 per doz.; turkies, 13 cents per lb.

RICE.—Active, at 8 to 8½ cts.

SALT.—Ground Alum \$1.75; Fine \$2.70 ¢ sack; Turk's Island 50 cts. ¢ bush.

SEEDS.—Clover, demand good at \$7.25@7.50 per bush; Timothy \$5.00 to \$6.00; Flax \$1.90 per bushel.

SUGAR.—Stock light; market firm. We quote grocery grades Cuba 9½@10½ cts.; Porto Rico 9½ to 11 cts.; New Orleans 9½@11 cts. and Demarara 11@12 cts.

WHISKEY.—Firm at 91@92 cts.

To Farmers and Planters.

REDUCTION IN PRICE

—OF—

"EXCELSIOR"

AND

Ammoniated Super-Phosphate.

The decline in Gold, and consequent reduction in cost of materials of which our fertilizers are composed, we are enabled to reduce the price of EXCELSIOR to \$60 and our AMMONIATED SUPER-PHOSPHATE to \$50 PER TON, and refer farmers and planters to our advertisements in this paper.

J. J. TURNER & CO.

Manufacturers,

42 W. PRATT ST., Baltimore, Md.

BALTIMORE, February 15, 1871.

It

We have a limited supply of

St. LOUIS BONE FLOUR,

The particles of which are about the size of Timothy seed. We recommend this as something very superior.

We will send a sample, by mail, to anyone desirous of seeing it, and think an examination will convince anyone of its superiority over anything in the market.

Price \$48 per ton of 2000 pounds.

E. WHITMAN & SONS.

mar-tf

No. 145 W. Pratt st., Baltimore, Md.

FREE SEEDS.

Sample Packages of Norway oats, Chester County Mammoth Corn, and Alsike Clover sent free to all Farmers wishing to test them, also copy of the American Stock Journal by enclosing stamps to pay postage. Address it N. P. BOYER & CO., Parkesburg, Chester Co., Pa.

To Cotton Growers!

"EXCELSIOR"

ANALYSIS:

Ammonia.....	6 per cent.
Super-Phosphate equivalent to	
Bone Phosphate of Lime.....	57 "
Potash and Soda.....	5 "

We again call the attention of growers of Cotton to our EXCELSIOR, composed of 700 pounds of No. 1 PERUVIAN GUANO, and 1,300 pounds of Soluble Phosphate of Lime (BONES DISSOLVED IN SULPHURIC ACID,) potash and soda, forming the most concentrated, universal and durable fertilizer ever offered to the farmer—combining all the stimulating properties of Peruvian Guano, and the ever durable fertilizing qualities of Ground Bones.

Excelsior is in fine dry powder, and can be applied in any quantity per acre, however small; and it is the opinion of many close calculating Farmers, after TWELVE years experience in testing it side by side with other popular fertilizers that an application of 100 pounds of Excelsior is equal to 200 to 300 pounds of any other fertilizer or guano offered for sale, therefore is fully 100 to 200 per cent. cheaper.

We annex copies of letters received within a few days from well known gentlemen who have proved the efficacy of Excelsior.

P. W. EDMONSTON, Esq., Halifax, N. C., writes December 16, 1870:

"I have used your Excelsior for several years on both cotton and corn, and find that it always produces valuable results. I think the combination of Dissolved Bones with Peruvian Guano, and which are the constituents of your Excelsior, makes a surer and better fertilizer than pure Peruvian Guano. The addition of Bones furnishes the phosphatic element which enters so largely into the composition of cotton and all the cereals. The sulphuric acid which is used to dissolve the Bones, at same time fixes the ammonia of the Peruvian Guano, and the whole is reduced by machinery to such a fine powder that it can be evenly distributed according to the wishes and judgment of the farmer. For these reasons I recommend it to my friends and shall continue to use it in preference to the pure and simple Peruvian Guano."

J. C. RANDOLPH, Esq., Halifax, N. C., writes 5th December, 1870:

"I have used Turner & Co.'s Excelsior extensively during the past five years, and with a view of obtaining the Guano or fertilizer best adapted to cotton growing in this section, have compared it with No. 1 Peruvian and all other manipulated guanos and fertilizers so popular in its production, and I am satisfied that the Excelsior is superior to them all. It has given better results where I used 100 pounds per acre, than Peruvian Guano 250 pounds per acre, and I exhibited at the late fair of the Roanoke and Tar River Agricultural Society, a stalk of cotton which took the premium, containing some 300 (three hundred) open bolls, when at the same period I had much cotton that had just commenced to open, where no fertilizer was used. I am further satisfied that the yield where I used the Excelsior was three times as heavy as where none was used and upon the same land."

G. W. OWENS, Halifax, N. C., writes December 10th, 1870:

"The high reputation of Turner & Co.'s Excelsior among planters in this section, who have used it for several years, induced me to use it the past season on my cotton crop, and I am satisfied with better results than any fertilizer I have heretofore used. It suits our soils better than Peruvian Guano, and I would prefer it pound for pound at the same cost. I recommend it to cotton growers, and will use it, and no other, hereafter."

H. J. HENRY, Halifax, N. C., writes December 10th, 1870:

"I have tried a great many fertilizers and also No. 1 Peruvian Guano, and I am certain that the Excelsior is far superior to any that I have used.—The Excelsior will be largely required by our planters next season in lieu of the many manipulated fertilizers which have proved so worthless. I am satisfied, further, that the Excelsior is a permanent manure."

G. W. BARNES, Halifax, N. C., writes December 10th, 1870:

"I have been using for several years No. 1 Peruvian Guano and Turner & Co.'s Excelsior Guano, about half of each, having always preferred the former in my farming operations to any manipulated manure,

THE MARYLAND FARMER.

but I am now satisfied that the Excelsior is better adapted to the cultivation of cotton in this section than any thing I have ever tried. I want nothing better."

DR. CHARLES GREGORY, Halifax, N. C., writes December, 1870:

"Before 1870 I used the Peruvian Guano and several other guanos and fertilizers, and the best evidence I can give of my satisfaction with your Excelsior is, that in 1871, I shall use it again and no other."

WM. COX, Esq., Burke Co., Ga., writes November 23d, 1870:

"From my experience with fertilizers, I would rather use your Excelsior than any fertilizer used by me since the war. Its benefit on clay soils is wonderful. I am satisfied that 200 pounds per acre, applied to cotton in the bed or sown with the seed when planting, will yield 100 per cent. over unmanured cotton in lint, saying nothing of the benefit in seed and regular stand. I am satisfied with only 150 pounds per acre of Excelsior, but believe that 200 pounds will pay the difference in product. You will always find sale for your Excelsior as long as it maintains its present standard."

JOHN T. LOWRY, Esq., near Yorkville, S. C., writes November 23d, 1870:

"The land on which your Excelsior was applied is a sandy soil with clay subsoil. On a ten acre lot I manured every other acre; the five acres manured produced seven thousand four hundred and eighty-one pounds of cotton; the five unmanured acres produced two thousand five hundred and ninety pounds of cotton. I have used all the prominent commercial fertilizers previous to and since the war, and your Excelsior is decidedly the best I ever used. There can be nothing made which is better for wheat and turnips than your Excelsior."

GEO. BAILY, Esq., Sussex Co., Va., writes November 15th, 1870:

"I have applied your Excelsior to cotton, corn and wheat for the past two years. I think I reaped as large crops from its application as I ever did from the application of same number of pounds of No. 1 Peruvian Guano, which I have used for past twenty years."

J. D. H. DUBRY, Esq., Southampton Co., Va., writes November 16th, 1870:

"I have used your Excelsior for two years on my cotton, corn and oat crops with satisfactory results. I used it this year on my cotton by the side of a popular fertilizer which I have been using for several years. I found that the cotton on which I ap-

plied the Excelsior, grew off stronger, boded better, and yielded at least one-fourth more. I consider your Excelsior fully equal to the best No. 1 Peruvian Guano, pound for pound, and superior to any fertilizer I ever used."

SKELTON NAPIER, Esq., Dennis' Depot, Putnam Co., Ga., writes January, 1871:

"I have been asked frequently 'which is the best fertilizer I ever used?' my reply always, is J. J. Turner & Co.'s Excelsior. I like the way you prepare it, dry and fine, and in good packages."

J. W. DOYAL, Esq., Halifax Co., N. C., writes February, 1871:

"I used Turner & Co.'s Excelsior Guano on cotton the past year and the effect was good. I am confident the yield of cotton was increased at least one-third by its use. I expect to use it again this spring."

WM. H. CLOPTON, Esq., Charles City Co., Va., writes February 21st, 1871:

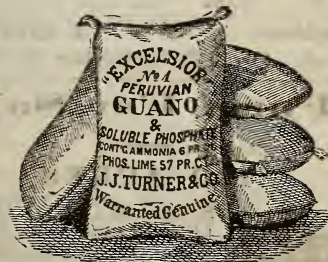
"After the use of several of the most approved kinds of fertilizers, including the No. 1 Peruvian Guano, I give Turner & Co.'s Excelsior the preference over all others, in yield, as well as its great excellence in perfecting the grain."

RICHARD G. GRIGG, Esq., Jarrett's Depot, N. C., writes November 22d, 1870:

"It affords me great pleasure to recommend your Excelsior. I think it is fully equal to No. 1 Peruvian Guano. I have used your Excelsior for several years on various crops and with a fair season it always paid well."

The very best evidence we can offer of the value of our Excelsior as a crop grower and fertilizer, is the fact of its being imitated and counterfeited in this and other cities.

Every Bag branded as follows:



Trade Mark Patented.

Farmers should see that the ANALYSIS and name of J. J. TURNER & CO. are branded on every bag in RED LETTERS. All others are counterfeits.

PRICE \$60 PER TON.

J. J. TURNER & CO., 42 Pratt st., Balt., Md.

PRUSSIAN AGRICULTURAL SALTS

OF

POTASH.

250 tons on hand, and to arrive, of the celebrated Stassfurth article, viz. *Muriate* containing 80 per cent.; and *Kainit*, containing 30 per cent. *Sulphate Potash*, 16 per cent. *Sulphate of Magnesia*, also *Chloride of Sodium* and *Gypsum*, calcined and ground, all well known promoters of vegetation. For Potatoes, Grapes, Fruit, Tobacco, Cotton, Grass, Corn, and almost every crop, it will be found a very valuable fertilizing agent on all soils deficient in Potash, which embraces almost all localities, particularly light soils.

Descriptive Pamphlets furnished on application to

CHARLES L. OUDESLUYS,

Importer of Potash Salts,

mar-3t No. 57 S. Gay St., Balto., Md.

SMALL FRUITS for \$5.

For \$5 I will send by mail:—

- 1 dozen Philadelphia Raspberries.
- 1 dozen Kittatinny Blackberries.
- 1 dozen Crystal White Blackberries.
- 1 dozen Wilson's Early Blackberries.
- 1 dozen 2 year old Concord Grape Vines.
- 1 plant of Iona Grape.
- 1 do. Rogers' No. 1 Grape.
- 1 do. Rogers' No. 15 do.
- 1 do. Clinton Grape.
- 1 do. Diana do.

Address,

J. COOK,

mar-2t Carroll P. O., Baltimore County, Md.

Farm For Sale.

160 ACRES,



Situated in COURTLAND VALLEY, 2½ miles North of M. & C. R. R. One hundred acres now in cultivation. Moderate improvements; two good cabins and necessary Out-Buildings. Will sell the above place very cheap. Terms to suit purchaser. For further particulars, address,

J. M. HALL, Agent,

Dry Creek, Laurence Co., Ala.

START A NURSERY, HOW TO -- Diagram, Management of Seeds Plants, &c. Price 25 cts. Address, HEIKES NURSERIES, Dayton, O. (Established 1822.) Price List Free.

Hay and Cotton Press Works.

Established 1854.



DERICK'S HAY AND COTTON PRESSES.

P. K. DEDERICK & CO.,

PATENTERS AND SOLE MANUFACTURERS.

Dederick's Patent Progressive Lever Presses are baling at least two-thirds of the hay, straw, &c., baled in the country, and are familiarly known everywhere as the best Presses. 34 different sizes of Horse, Hand and Power Presses, for baling hay, straw, cotton, hemp, hops, cloth, hides, moss, husks, broom corn, &c. Send for Illustrated Catalogue, giving Sizes, Prices, and much other information useful to the farmer, planter, packer and shipper. Do not wait until Machines are wanted, then order in haste—but post yourself in season. We charge nothing for information. State your transportation facilities, market, &c. ADDRESS,

P. K. DEDERICK & CO., Albany, N. Y.

1t

or Cincinnati, O.

CHEAP PAINTING.—

100 lbs. of the PECORA COMPANY'S COLORED PAINT will paint as much as 200 lbs. of Lead, and wear longer.

For circulars, send ten cents to S. BOWEN, Manager, No. 150 North 4th St., Phila., Pa.

COST LEAD.

mar-3t

PEACH TREES.

A FEW Thousand first class TREES, of best leading varieties, suitable for Orchard planting.

Send for Catalogue and Price List—mailed free to all applicants.

LUKENS PEIRCE,

Ercildoun and Coatesville Nurseries,

1t

Coatesville, Pa.

CABBAGE, ONION, SQUASH.

I have written three works on the cultivation of these vegetables. The works abound in engravings, and go into all the minute details so valuable to the beginner.—completely exhausting the subject. Each treatise sent by mail for 30 cents.

mar-2t JAMES J. H. GREGORY, Marblehead, Mass.

PREMIUM CHESTER WHITE PIGS.

Pure Blood, Short Horn, (Durham.) Devon. Alderney and Ayshire Calves, Merino, Southdown and Cotswold Sheep, Cashmere Goats, Imported Suffolk, Essex, Berkshire and Seltou Pigs, and all Choice Breeds of Poultry and Eggs for sale.

Send for Circulars and Prices. Address

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INTERESTING TO LADIES.

The following extracts are from the testimony, taken under oath, in a recent case pending before the United States Patent Office, upon the actual merits of the

GROVER & BAKER SEWING MACHINE,

and its relative merits as compared with other machines:

Mrs. Dr. McCready, says:

"I have used, for nine years, a GROVER & BAKER MACHINE, and upon it I have done all kinds of family sewing for the house, for my children and husband, besides a great deal of fancy work, as braiding, quilting, and embroidering. During all that time my machine has never needed repair, except when I had the tension altered, and it is as good now as it was the first day I bought it."

"I am acquainted with the work of all the principal machines, including Wheeler & Wilson's, Finkle & Lyon's, Wilcox & Gibbs, Ladd & Webster's, the Florence machines, and Sloat's machines, besides a number of ten-dollar ones; and I prefer the Grover & Baker to them all, because I consider the stitch more elastic. I have worked now in the house that was done nine years ago, which is still good; and I have never found any of my friends who have used the other machines able to say the same thing

Mrs. Dr. Whiting gives the following reasons for the superiority of the Grover & Baker machines over all others:

"The elasticity of the stitch, and ripping when it is required; and also the stitch fastening itself, as you leave off; and also, the machine may be used for embroidering purposes; and therein consists the superiority over other machines.

"The stitch will not break when stretched, as the others do, and neither does it draw the work.

"I find this stitch will wear as long as the garments do—outwear the garments, in fact.

"I can use it from the thickest woolen cloth to Nansook muslin."

Mrs. Alice B. Whipple, wife of Rev. Mr. Whipple, Secretary of the American Missionary Association, testifies:

Q. As the result of your observation and experience, what machine do you think best as a general family instrument?

A. The Grover & Baker, decidedly.

Q. State the reasons, such of them as occur to you, for this opinion.

A. I think the stitch is a stronger stitch than that of any other machine I have used, and it seems to me much more simple in its management than other machines; one great advantage is the ease with which the seam is ripped when necessary to do so; and I think that the work, by an experienced person, on a Grover & Baker machine, is better than the work by such person on any other machine; it requires more skill to work other machines than the Grover & Baker.

Mrs. General Buel says she prefers the Grover & Baker machine over all others.

"On account of its durability of work, elasticity of stitch and strength of stitch. It never rips.

"It is preferred over all others; it is very easy in its movements, and very easily adjusted, and very simple in its construction.

"We can accomplish more in one week, by this sewing machine, than we can in a month by hand-sewing."

Mrs. Dr. Watts, says:

"I have had several years' experience with a Grover & Baker machine, which has given me great satisfaction. Its chief merit is that it makes a strong elastic

stitch; it is very easily kept in order, and worked without much fatigue, which I think is a very great recommendation. I am not very familiar with any other machine, except a Wheeler & Wilson, which I have had. I think the Grover and Baker machine is more easily managed, and less liable to get out of order. I prefer the Grover & Baker, decidedly."

Mrs. A. B. Spooner, says:

"I answer conscientiously, I believe it to be the best, all things considered, of any that I have known.

"In the first place, it is very simple and easily learned; the sewing from the ordinary spool is a great advantage; the stitch is entirely reliable. It does ordinary work beautifully, and the embroidery stitch. It is not liable to get out of order. It operates very easily. I suppose I can sum it all up by saying it is a perfect machine.

"I have had occasion to compare the work with that of other machines. The result was always favorable to the Grover & Baker machine."

Mrs. Dr. Andrews, testifies:

"I prefer it to all other machines I have known anything about, for the ease and simplicity with which it operates and is managed; for the perfect elasticity of the stitch; the ease with which the work can be ripped, if desired, and still retain its strength when the thread is cut, or accidentally broken; its adaptation to different kinds of work, from fine to coarse, without change of needle or tension."

Mrs. Maria J. Keane, of the house of Natalie, Tilman & Co., says:

"Our customers all prefer the Grover & Baker machine, for durability and beauty of stitch."

Mrs. Jennie C. Croly, ("Jenny June,") says:

"I prefer it to any machine. I like the Grover & Baker machine in the first place, because if I had any other I should still want a Grover & Baker; and, having a Grover & Baker, it answers the purpose of all the rest. It does a greater variety of work, and it is easier to learn than any other. I like the stitch because of its beauty and strength and because, although it can be taken out, it doesn't rip, not even by cutting every other stitch."

The foregoing testimony establishes beyond question:

1. The great simplicity and ease of management of the Grover & Baker machines.

2. That they are not liable to get out of repair.

3. That a greater variety of work can be done with them than with other machines.

4. That the elasticity of the stitch causes the work to last longer, look neater, and wear better, than work done on other machines.

5. That the facility with which any part of the seam can be removed when desired is a great advantage.

6. That the seam will retain its strength even when cut or broken at intervals.

7. That, besides doing all varieties of work done by other sewing machines, these machines execute beautiful embroidery.

Over one hundred other witnesses in the case above referred to testified to the superiority of the Grover & Baker machines in the points named in substantially the same language, and thousands of letters have been received from parts of the world, stating all the same facts.

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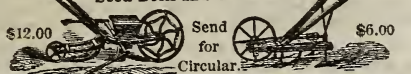
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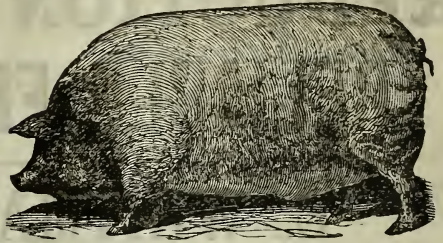
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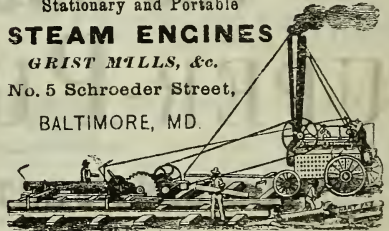
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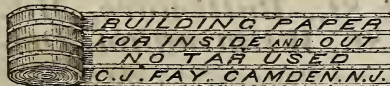
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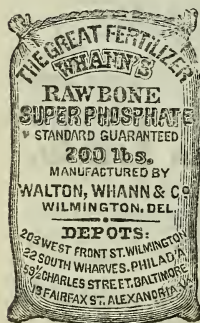
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

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Result of Analysis of a sample of dry Ammoniacal matter representing a lot of 2,000 Bags for R. W. L. RASIN.

Organic Combustible Matter.....	83 21
Yielding of Ammonia.....	12.781
Inorganic Earthy Matter.....	11.79
Containing of Bone Phosphate of Lime.....	4.41

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The Manufacturers will be very safe in using this material as a source of Ammonia in their Super-Phosphate. I am able to say, as the result of several analyses, that it is rich and remarkably uniform in its composition, much more so than any other Ammoniacal Fertilizer known to me.

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Yours, respectfully,

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Result of Analysis of a Sample of Animal Matter, presented me by R. W. L. Rasin, Esq.
Ammonia Act. and Potent.....9.055

G. A. LIEBIG.

Analytical Laboratory, No. 32 South Street, Baltimore, Md., December 3d, 1870.

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Average of two determinations shows that it is capable of producing—Ammonia.....8.85 per cent.

The Nitrogenous Matter producing Ammonia, in the above, is a much more valuable form of Ammonia than the volatile salts in Peruvian and Guanape Guanos, and, with the exception of the "Ammoniacal Matter" offered by Mr. Rasin, is superior to any similar Ammoniacal material that I have yet examined.

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Analytical Chemist, (formerly of the Surgeon Genl's Office, Washington, D. C.)

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J. J. TURNER & CO.'S

AMMONIATED BONE SUPERPHOSPHATE

Or, AMMONIATED DISSOLVED BONES.

ANALYSIS—Ammonia.....	2.83
Soluble Phosphate of Lime.....	29.51
Bone Phosphate of Lime.....	10.67

FOR COTTON, CORN, OATS AND SPRING CROPS GENERALLY, IT
HAS NO SUPERIOR.

Composed of the most concentrated materials, it is richer in Ammonia and Soluble Phosphates than any other fertilizer sold. Uniform quality guaranteed. Fine and dry, in excellent order for drilling. Packed in bags and barrels. ~~At~~ PRICE \$50 PER TON, CASH.

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It is very large and smooth, with very solid flesh.

Price 25 Cents Per Paper.

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Philadelphia Lawn Mower, AND UNION WASHING MACHINE.

R. SINCLAIR & CO.

Dealers in Agricultural and Horticultural Tools,

No. 62 Light Street, Baltimore, Md.

Important Knowledge FOR THE Farmer, Horseman and Dairyman.



BREINIG, FRONEFIELD & CO'S Vegetable Cattle Powder.

IN CALLING YOUR ATTENTION TO THIS article, we feel assured that we are not under the necessity of introducing you to something new. Its title has become a household word amongst our farming community. The object in view in issuing this circular, is calculated rather to remind the farmer and cattle raiser of the importance of paying more attention to the welfare of his stock.

Not a year passes but what adds through the workings of soil searching, inventive genius, new agricultural implements to facilitate the farmer in his labor; new stimulents and manures for the soil are invented, and yet nothing is done for the welfare of the great source of wealth—the barn yard.

The subscriber, one of the late firm of Breinig, Fronefield & Co., has had the experience of over twenty years in the manufacture of the *Vegetable Cattle Powder*, to which he refers as a great agricultural improvement and discovery.

The idea that we can feed nothing to a cow but the well known ordinary fodders with any advantage, is surely fallacious.

Every farmer knows that different kinds of food will produce different amounts and qualities of milk and butter, the one kind of food being more productive in the animal than the other. One kind of food will stimulate the animal much more than the other, it possessing a greater amount of nutritious element than the other, yet such a stimulous is by no means an unnatural one. The *Vegetable Cattle Powder* is a highly concentrated form of a nutritious element, and consequently it cannot but effect a large increase in the amount of the animal produce. The Powder will act on the animal system just as manure will act on the soil: it stimulates but in a natural way, without any injurious effect afterwards.

The Cattle Powder is a purely Vegetable Compound, containing nothing which could possibly injure any animal, even if fed to excess. It is compounded upon strict scientific chemical principles, having for its corner stone the theory as propagated by the celebrated German Chemist, Prof. Liebig, in his treatise on Organic Chemistry.

It contains all the elements necessary for the formation of healthy blood in the animal economy, from which all parts of the body are necessarily formed.

It contains in a large proportion, the elements necessary to generate animal heat in the system, thus, an animal instead of breaking up an undue amount of its regular food for the purpose of keeping up the required heat to sustain life, is to a great extent supplied with the elements of heat by the powder; hence, it naturally follows that a greater amount of the animal's regular food is left for the formation of healthy blood, and consequently more fat or milk and butter, as the case may be.

It will convert effete matter in the animal's stomach into a nutritious element, cause a greater amount of nutritive matter to be extracted from the same amount of food.

It has a tonic effect, which will at all times keep an animal in a good, healthy and thrifty condition, with a uniform good appetite.

This is the theory of the Cattle Powder as made by the subscriber. That this theory is a correct one, the experience of thousands of farmers will testify. They feed it regular according to directions, and the result is that they make from one to two and a half pounds butter per week on each cow more than when they do not feed it, all other conditions being alike.

One dairyman in Delaware county, Pa., says, "I make out of every five dollars' worth of the Cattle Powder I feed, fifty dollars."

The same increase is proportionally produced in the fattening of cattle and swine. In the latter it will prevent fevers and lung diseases, very prevalent among fattening swine; it will keep them thrifty and fatten them on one-third less food than when the powder is not fed.

As a medicinal preparation, the Cattle Powder has proved itself to be a most beneficial compound. Being prepared of pure vegetable matter, it possesses none of those mineral preparations which in most cases leave from their own effects more injurious results than the disease they pretended to remove.

HORSES.

He who knows how to mix Antimony, Flor, Sulphur, salt Petre and Foene-greek, has the whole secret of nearly all the different horse medicines in general use. The Vegetable Cattle Powder, as prepared by the subscriber, is free from all the many evils effects of such strong mineral medicines, and yet it is so compounded of various roots, herbs, barks, &c., as to be prompt in its effects, and able to give effectual relief in all the prominent diseases of the horse.

To keep a horse in general good condition, you should feed him a tablespoonful of the Powder, well mixed with his feed, *two to three times a week*.

When a horse is in general bad order, low spirited, with a rough coat and tight skin, with little or no appetite, you should give a large tablespoonful twice a day until he improves.

In the Spring of the year when a horse is about shedding his coat, nothing will do him better service than a tablespoonful of the Powder every morning well mixed with his feed.

COUGHS.

This disease is produced by an inflammation, and a collection of slime in the mucous membrane of the *Windpipe and Lungs*, and if long continued is apt to give rise to *Broken Wind or Heaves*. The Cattle Powder is especially adapted to the removal of irritation from the *Chest and Lungs*, and is therefore the only remedy wanted to produce a radical cure. Give a tablespoonful every four hours in a little warm water.

DISTEMPER.

Almost every young horse is likely to get this disease. It will, in the early stage of it, invariably yield to the use of the Vegetable Cattle Powder; when matter has once formed in the glands of the neck or throat, it cannot cure the animal until the matter is discharged. Give a tablespoonful of the Powder three to four times a day, as a drench, if the animal has difficulty in swallowing.

When abscesses have formed, use freely the Cattle Liniment, as prepared by the subscriber, it will do much service in softening them, and hastening their discharge.

FARCY

This terrible disease is a complete corruption of all the humors of the body. The appearance of the farcy buds along the track of the veins, prove that it is a disease entirely of the *vascular and glandular system*. The free use of the *Vegetable Cattle Powder* will be a sovereign remedy, as it is the best corrective known for an impure and unhealthy state of the blood in *animals*. No animal has ever been known to get the Farcy while being fed occasionally with it. It should be given in tablespoonful doses, every two hours in extreme cases, and preserved in for three or four weeks; as soon, however, as the violence of the symptoms abates, the intervals may be longer, until towards the last, when three times a day will be often enough to complete the cure. Should the *Farcy buds* be open before the Powder is used, or has time to operate, it will be necessary to wash them freely with the following wash:

Blue Vitriol, 1 oz.
Soft water, 1 quart. Dissolve.

This will produce a healthy action of the parts, and dispose them so heal; but the great point is to improve the condition of the blood by the free and early use of the Powder.

FEVERS.

Are always produced by hard usage and bad attendance, and are among the most dangerous of the diseases of animals. They generally proceed from a derangement of the digestion, which renders the blood highly *acidised*, and therefore unhealthy. The Cattle Powder, by consuming the excess of Nitrogen, restores the animal without much delay, and is a sovereign remedy in all febrile diseases, in such animals as consume an abundance of Oxygen. The Powder should be taken in the dose of a tablespoonful every four hours, during the violence of the Fever.

GLANDERS.

This disease has ever baffled the skill of all *Veterinarians*, and is generally thought to be incurable.—This notion is false; its ravages are confined to the *glandular system* entirely and is nourished and kept alive by imperfect nutrition. No remedy but such as will correct that function, can or will do much in this terrible, and hitherto incurable malady. Give the Powder a fair and candid trial and it will work wonders.

A tablespoonful every two hours, for the first week during the day, and the gradually lengthen the intervals between the medicine, till a cure is effected. If there is much discharge from the nose, indicating ulceration of the nasal cavities, it will be necessary to give the horse a tablespoonful of *Chloride of Lime* at least three times a day, for a week or two; at the same time let the animal inhale the fumes of a warm infusion of the same, in the proportion of one ounce to a gallon, at least twice a day. A proper perseverance in this treatment has, and will do more good than any other treatment ever used in such cases.

GRIPES AND COLIC,

May be cured in a few minutes by taking a tablespoonful of the Cattle Powder with half a pint of *Gin*, and add thereto a half an ounce of *Laudanum*, and giving it to the animal as a drench, as soon as possible; if it does not cure, repeat in half an hour, and the cure is certain.

INFLAMMATIONS.

The use of the Cattle Powder in such diseases should always be attended with blood letting. A small quantity of *Salt Petre* given at the same time, will do a great deal of good—say a tablespoonful three times a day; as soon as the violent symptoms of inflammatory action has passed by, stop the *Salt Petre*, and continue the use of the Powder alone till cured.

Jaundice, or Yellow Water,

This is caused by a stoppage of the gall ducts, and is the destroyer of a great many horses. The Vegetable Cattle Powder in the dose of a tablespoonful three or four times a day, in conjunction with one of the following balls every other night for a week or so, will almost invariably perform a cure:

R. Tartar emetic, 1 oz.
Aloes, 2½ oz.
Hard Soap, 2 oz.
Ginger Powder, 1 oz.

Mix and divide into six balls.

HIDEBOUND.

This condition is the consequence of bad digestion, and is readily cured by the Vegetable Cattle Powder alone, in doses of a tablespoonful three or four times a day, making at the same time the free use of the curry comb and brush, to remove the dandruff from the skin, and to open the pores.

STAGGERS.

This singular and insidious malady has destroyed many of the finest animals of the country, particularly fast trotting race horses. It is produced by the Liver failing to throw off the carbonized compounds, which, by mingling with the blood, develops slow inflammation of the brain, with congestion of the spinal marrow. The following will be found the best treatment ever used for its cure.

Give the horse first a pint of Castor Oil, so as to open his bowels freely; then draw about a gallon of blood from a vein in the neck; afterwards give him one of the following balls every night for a week, and if not much improved continue their use for three or four weeks, or until the attacks become arrested. As soon as the acute symptoms have passed by, give a tablespoonful of the Vegetable Cattle Powder three times a day, till the cure is complete.

R. Aloes, 12 oz.
Castile Soap, 6 oz.
Ginger, 2 oz.
Oil Caraway, 1 oz.

Mix and make into twelve pills.

DISEASE OF KIDNEYS.

The Cattle Powder will remove all diseases of the Kidneys and Urinary Organs, in the dose of a tablespoonful morning and evening. A tablespoonful of *Sun Flower Seed* or *Wild Carrot*, will be a great addition to the Powder in such complaints.

LUNG DISEASE.

Allow the horse to have green food if possible; if much inflammation, bleed him once, and then use the Powder twice or three times a day. If it is of long standing, give him once a day, a half pint of *Tur* and *Lime* waters, mixed in equal proportion.

SCOURS.

The *Cattle Powder*, with the addition of a teaspoonful of *Laudanum*, given three times a day in tablespoonful doses, will insure almost immediate relief.

COWS.

In milking cows, the subscriber feels confident that the Vegetable Cattle Powder, *as he now makes it*, will astonish all who use it, and convince the most incredulous. To assert that by feeding a cow a tablespoonful of this Powder, once a day, it will so much improve the quantity and quality of her milk as to yield *one pound of butter per week more*, is promising much, yet the evidence of thousands can be produced, to prove such an assertion. One milkman says he has a cow which will yield *three quarts of milk more per day* when he feeds her the Powder, than when he does not. This increase is made by keeping the cow in a healthy and thrifty condition, with a good appetite, but mainly by the chemical properties of the Powder, which acts on the animal system just as manure acts on the soil.

The Powder will also have a tendency to make a cow yield nearly as good butter in winter as in the summer season. It possesses the similar qualities of green pasture, and which are lost in the drying of hay.

For *fattening Cattle*, the Powder is most useful. It will keep up in the animal a constant good appetite, and fatten it on much less feed. Give a tablespoonful once a day, well mixed with the feed.

Jaundice, or Yellows.

A disease of the gall ducts, and a thickening of the *bile* or *gall*, brought on by *surfeit* or *impoverished* blood, and may be cured by giving the animal first the following laxative:

- R. Aloes, $\frac{1}{2}$ oz.
Salts of Tartar, 2 drachms.
Ginger, 1 oz.
Warm water, 1 pint.

Mix well, and give one half morning, and the other half at night; then use the Cattle Powder in the dose of a tablespoonful four times a day, if the disease does not yield, repeat the laxative.

Bloody Urine, or Red Water.

These affections are very common, and often very fatal if not managed very carefully in first onset. In most cases, if used early the Cattle Powder will cut the disease short; if left too long or the disease proves obstinate, the following may be used with the Powder:

- R. Epsom Salts, 1 lb.
Flour Brimstone, 4 oz.
Solid Hartshorn, $\frac{1}{2}$ ob.
Ginger, $\frac{1}{2}$ oz.
Warm Water, 1 quart.

Give one-fourth of this every eight hours, and use at the same time an infusion of *Raspberry leaves* with the food; if that should also fail, try the following:

- R. Oil Juniper, 1 oz.
Oil Turpentine, 1 oz.
Laudanum, 1 oz.
Alum, $\frac{1}{2}$ oz.

Mix all in a quart of *Flozseed Tea*, and give a quart three times a day, which will not fail to perfect a cure.

BLOODY MILK.

And every other disease of Neat Cattle, depending upon a bad state of the fluids is removed speedily and effectually by the simple use of the Powder alone. Cows, whose milk is bloody, blue thin or watery, not yielding either cream or butter, or that stand *dry* for a long time, will be entirely restored by a course of this Powder, in the ordinary dose of a tablespoonful two or three times a day.

Fevers, Diarrhoea or Looseness.

These are brought about by a weakness of the internal coats the stomach and bowels, and much benefitted by the use of the Powder alone, though if they should not yield readily, or has been of some standing, the following should be given at the same time with the Powder:

- R. Mutton Suet, 1 lb.
New Milk, 2 qts. boil to one half, and add
Laudanum, $\frac{1}{2}$ oz.
Ginger, $\frac{1}{2}$ oz.
Cinnamon, $\frac{1}{2}$ oz.

And give of this mixture a half pint morning and evening; if obstinate, three times a day.

Hollow Horn, or Wolf Disease.

This distemper among Cattle is one of the most common, and is always produced either from *over feeding*, causing a surfeit, or by *too poor feeding*, which weakens the blood, and destroys digestion. Any and every Farmer or Dairyman who regularly uses the Vegetable Cattle Powder, if only in moderate quantities, will never have his cattle troubled with this disease; it will keep up a healthy condition of the stomach, maintaining the blood pure and healthy. By uniting with *Oxygen* readily, it takes the place of *nutritive matter*, and allows even the smallest quantity of food in poorly fed animals to be appropriated for their strength and vigor.

In cases of over feeding it acts by giving new energy to the stomach, promoting the healthy assimilation of the food, and by combining readily with the excess of nutrition, converts it into *fat globules*, and thus keeps the animal perfectly healthy.

HOGS.

Hogs and *young pigs*, during the summer, often over-heat themselves, get swelled necks, coughs, ulcers in the Lungs and Liver, which cause them to die very suddenly. These affections may all be entirely prevented by putting a pound, or a half pound of the Vegetable Cattle Powder into a barrel of *swill*. It will at the same time considerably hasten the fattening process, increasing the deposition of fatty matter at the lowest calculation twenty per cent. on the same kind of food and keeping.

In large distilleries, where hogs are highly fed, and crowded together, they are very apt to get sick and die in great numbers from disease of the *Liver* and *Lungs*, which get full of abscesses. There *cannot* be, and *certainly* there is no remedy better suited for feeding such hogs than the *Cattle Powder*. The experience of *Distillers* throughout the whole country has taught this valuable fact. A distiller who used the Powder during the summer of 1852, out of nine hundred hogs said he did not lose a single one, while other seasons he had lost from one to two hundred.

The subscriber also manufactures

BREINIG, FRONEFIELD & CO'S Cattle Liniment.

Address FRED. A. MILLER.

SOLE AGENT. •

[MEMBER OF THE LATE FIRM,

NO. 135 NORTH FRONT ST., Philadelphia.

A valuable remedy for Rheumatism, and nearly

all painful affections of the *Human Body*, and certainly not equalled as a *Universal Embrocation* in all diseases incident to cattle.

All the common Horse Embrocations are made of Senecca Oil, Oil Spike, Oil Stone, Barbadoes Tar, &c., variously combined. The great objection to all these, lies in the fact that they cannot, from their nature, penetrate the thick skin of the horse or cow, and are therefore inactive. The Cattle Liniment, as prepared by the subscriber, at once denies the existence of any of the above articles. It is penetrating, and at once able to reach and act upon the diseased part.

For Sprains, Bruises, and Rubbing of the Collar, nothing can be used that will act more promptly and perform a cure quicker than the *Liniment*, applied two or three times a day, bathing the parts just before using it, with cold water, it hardens the skin and prevents a return. For stiffness and swelling of the legs, which so frequently are the forerunners of scratches and abscesses, a timely application of the *Liniment* will effectually cure them. Bathe the parts two or three times a day, or oftener, allowing the horse to move about daily, and be particularly careful not to allow him to stand in any one place more than five or six hours, if possible, without moving around for a few minutes. If he cannot be removed from the stable, throw plenty of Gypsum or Plaster under his feet, so as to destroy the *Ammonia* which is constantly being generated from the manure, and which is the chief cause of preventing a cure. If there should be much inflammation, it would be better at first to use the following wash.

R. Goulard's Extract, 1 oz.
Laudanum, 1 oz.
Vinegar, 4 oz.
Water, 4 quarts.

Mix and wash the parts three or four times a day; when the active inflammation is removed, use the *Liniment*, diluted first, to prevent thickening of the leg, and a cure will speedily follow.

SWELLED NECK.

This is a common disease, arising from distemper, and is often very tedious to heal. If the *Liniment* is used early it will almost always arrest the formation of *matter*; if not used soon, and *matter* should form, it will still prevent the formation of very large abscesses, and will remove the hardness left behind, which prevents the animal from swallowing freely. When *matter* forms, the abscess should be opened with a *lancet* as soon as ripe. To cause a speedy opening, a poultice of *Pond Lilly Root* roasted in ashes till it gets soft as butter, is one of the best remedies, changing it daily. As soon as the *matter* is discharged, apply the *Liniment* twice a day, to remove the induration.

Foot Rot, Founderd Feet.

This complaint often ruins many valuable horses and neat cattle. To cure the former, clean the foot or hoof well from dirt, and pour into the diseased part a table-spoonful of *Liniment* once or twice a day, protecting the foot from dirt by larding or felt, using the *Plaster* as before mentioned, if the animal stands in the stable.

To cure *Founderd Feet*, the animal should have the Vegetable Cattle Powder internally, and bathe with the *Liniment* two or three times a day externally.

Thoroughpin, Windgalls.

These are generally the result of hard driving or straining, and appear on different parts of the legs. The tumors are an enlargement of the *Bursae*, or an effusion into the sheath of the tendon, and may be easily cured if not of too long standing, by bathing the parts with the *Cattle Liniment*, and rubbing them freely with a soft rag or the hand for twenty or thirty minutes, morning and evening.

SWEENEY.

This is known by the falling away of the flesh, mostly of the *Hip or Shoulder*, and weakens the part very much; many fine and noble horses have been rendered useless by this disease. Bathe the part well with the *Liniment* twice or three times a day, always preceding the application by wash-

ing the part well with cold spring water; if this treatment is persevered in for a proper time, it hardly ever fails of effecting a cure.

RINGBONE AND SPAVIN.

Are both very hard to remove effectually; they are dependent upon an enlargement of the bone, and a deposition of matter adjacent. In the early stage, the *Liniment* will arrest their growth, and often remove the tumor by *absorption*; if very hard and of long standing, nothing but the *Ringbone and Spavin Ointment* will cure them.

SCRATCHES, OR GREASE.

Are diseases which are seldom cured, and principally because the remedies used are not calculated to penetrate through the thickened parts, so as to excite the deep-seated absorbents of the legs, while external vessels are too much compressed and weakened to be benefitted by any application. If the treatment here laid down be followed out, almost every case can be cured by a little time and perseverance. Wash the parts daily, twice, with a strong decoction of *Scrofula Weed* or *Wheat Bran*; at the same time take the following wash:

R. Goulard's Extract, ½ oz.
White Vitriol, ½ oz.
Alum, ½ oz.
Water, ½ gal.

Mix and bathe the legs with this once a day, between the other washings; continue this till the inflammation has pretty much disappeared. To reduce the thickening, take a table-spoonful of the *Cattle Liniment*, add to it a pint of water, and bath two or three times a day, making it gradually stronger as the leg gets thinner, and the cure is complete.

Cracked Hoof, Sand Cracks, Warts.

These are very often the cause of much lameness and misery, if allowed to run on without attention. The parts should be cleaned, and the hoof pared away so as to get at the bottom of the disease; then pour into it a small quantity of *Liniment* and bind it up, so that no dirt can get into the parts till they are healed.

This *Liniment* may also be used as an application to the human body. It is highly useful in *Rheumatism* of any part of the body. *Strains*, *Weakness of the Back*, *Cramps* or *Spasms of the Legs and Arms*, and every painful affection. The parts should be bathed two, three or four times a day if necessary, with a piece of flannel or the hand, and rubbed fifteen or twenty minutes each time. Price 50 CENTS PER BOTTLE.

The subscriber also prepares an excellent remedy for

HEAVES.

THIS HEAVE POWDER when used strictly in accordance with directions, is one of the safest and best remedies ever discovered for the cure of *broken wind*. The disease is the result of a diseased condition of the membrane that lines the bronchial tubes and air cells of the lungs and can be effectually removed only by such treatment as will at once remove the cause. The subscriber having turned his attention to this subject, has in his opinion discovered a remedy that will relieve every case, and if the disease has not already produced thickening of the mucous membrane of the air tubes, will effectually cure every case. In all cases it gives great relief. PRICE \$100 PER PACK.

Spavin and Ringbone Ointment.

This remedy has cured some of the worst forms of *Spavin* and *Ringbone* and other hard and bony tumors. Animals that were so lame and crippled as to be unfit for use, have been made useful and valuable by the use of this Ointment. It acts by exciting the absorbent vessels of the parts to a brisk action, and cause them to take up the tumor and carry it away. PRICE \$1.50 PER BOX.

HOOF OINTMENT.

A valuable preparation to be used for softening the *Horny substance of the Hoof*. It is a perfect cure for *Quarter Cracks* and *Scratches*, and will prevent contracting of the hoof, if applied properly. PRICE \$1.00 PER BOX.

Prepared by FREDC. A. MILLER, No. 135 North Front St., Philadelphia, Pa.